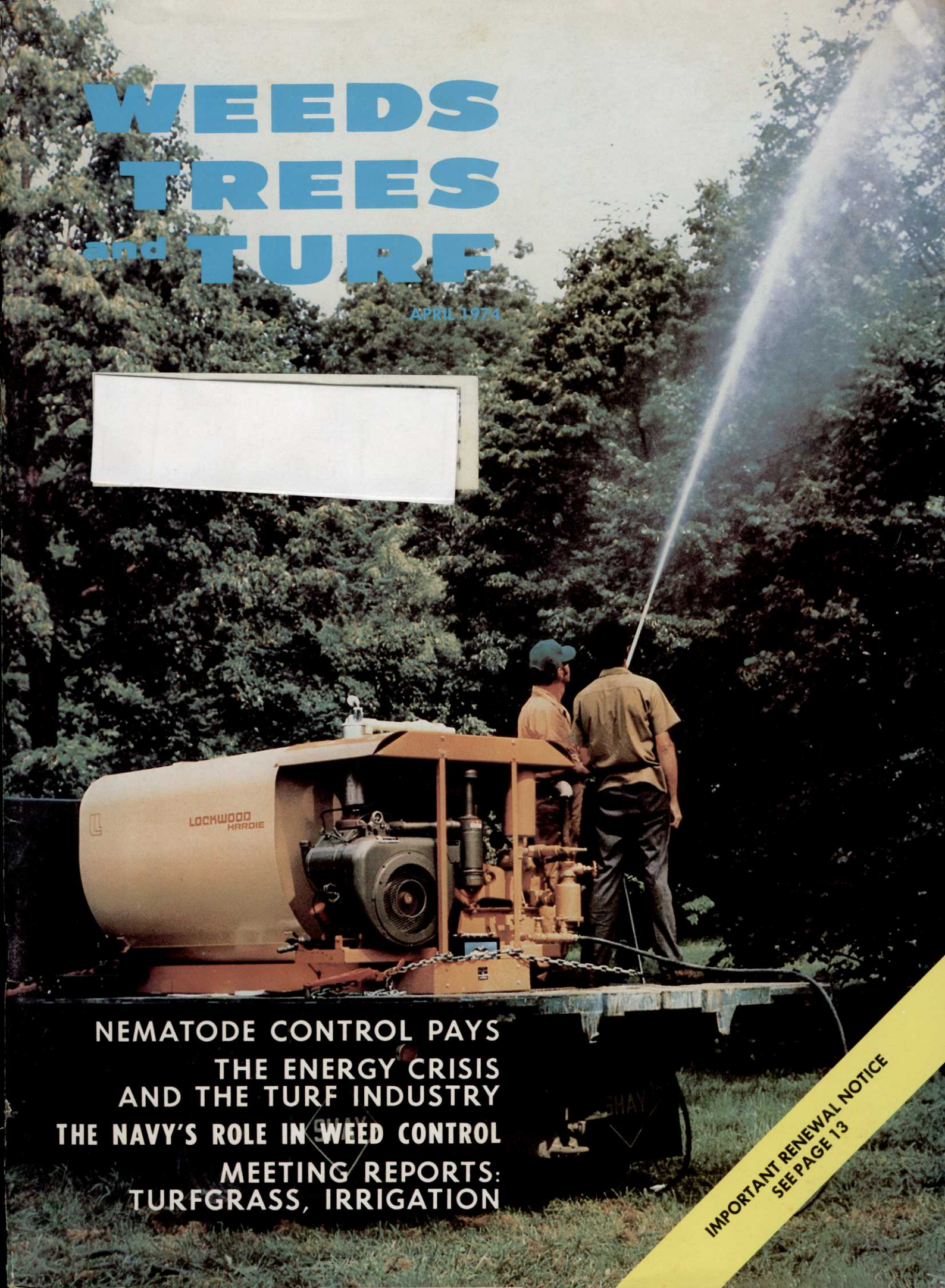
WEEDS TREES and TURF

APRIL 1974



NEMATODE CONTROL PAYS

THE ENERGY CRISIS AND THE TURF INDUSTRY

THE NAVY'S ROLE IN WEED CONTROL

MEETING REPORTS: TURFGRASS, IRRIGATION

IMPORTANT RENEWAL NOTICE SEE PAGE 13

With MAINTAIN® CF 125, you can get along without so much mowing, pruning, trimming and edging.

Because practically everything MAINTAIN touches grows slower.

Just how much slower depends on what the weather does to your greenery and what kind of greenery it is.

For example, 200 acres of grassed median in Pennsylvania were treated with MAINTAIN early last spring, just after the first mowing. The grass was cut once more before Labor Day, and that was it. MAINTAIN saved the State Department of Transportation approximately 5 mowings that year.

What's more, MAINTAIN works on trees, shrubs and vines as well as grasses.

While it slows down the growth of turf, it practically stops broadleaf weeds in their tracks. Which, naturally improves the quality of the turf, as well as the effectiveness of your maintenance program.

And MAINTAIN can be sprayed where machinery can't go. Up steep slopes. Around guard rails. Along fences.

At Washington National Airport in Washington, D.C., MAINTAIN was used on a dangerously steep bank between two levels of the airport. MAINTAIN saved the maintenance department 5 mowings, and the chance of injuries was reduced immeasurably because the equipment was not used as often.

Of course, the best way to find out what MAINTAIN can do for you is to try it. And the best way to do that is to get in touch with your U.S. Borax distributor or your nearest U.S. Borax office:

234 Eglinton Ave., East Toronto
315, Ontario, Canada
1290 Avenue of the Americas, N.Y., N.Y. 10019
1700 East Sherwin Avenue, Des Plaines, Illinois 60018
300 Interstate N. Parkway, Atlanta, Georgia 30339
3075 Wilshire Boulevard, Los Angeles, Calif. 90010

U.S. BORAX
A MEMBER OF THE RTZ GROUP

With. Without.

For More Details Circle (109) on Reply Card

Aerial applicators:
want to take off with this kind of drift control?
You can. Just use Lo-Drift™ spray additive the next time you fly on an Amchem herbicide.
What you see here ground-applied is what you'll get airborne—a major reduction of fines that can cause drift problems. Instead, the spray is made up of large, heavy droplets that fall faster, stay intact, and land where you want them. And stick better, too. Because Lo-Drift not only increases droplet size, it helps them to adhere to foliage.
Lo-Drift mixes readily and requires no special nozzles or mixing/spraying equipment. It won't corrode equipment, and clean-up is simple using just water.
Chemical cost? As little as a penny a gallon of mix. Is there a more economical way to help prevent drift problems from shooting you down? Ask your dealer for a Lo-Drift pamphlet. Or write: Marketing Manager, Industrial Products, Amchem Products, Inc., Ambler, Pennsylvania 19002.
LO·DRIFT™
SPRAY ADDITIVE
AMCHEM
A·RORER·AMCHEM COMPANY
AMCHEM PRODUCTS, INC. AMBLER, PA.

WEEDS TREES and TURF ®

"Serving The Green Industry"

Volume 13, No. 3 **March, 1974**

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Contingency Use of DDT Granted **14**
A WTT special news feature. Russell E. Train, administrator of EPA, grants an emergency exemption for DDT in the states of Oregon, Idaho and Washington.

The Energy Crisis And The Turf Industry **16**
A new twist in the present energy situation. Dr. James R. Watson of Toro Looks at the beneficial effects of better maintenance and more utilization of turf facilities.

Nematode Control Pays **18**
A study of the effect of nematode control on bentgrass putting greens.

Turfgrass: The People Pleaser **20**

The Navy's Role In Weed Control **24**
The military way to solve weed problems and unique biological problems present a challenge to D. R. Estes, special assistant for Applied Biology, Department of the Navy.

Sprinkler Irrigation Association Report **26**

Rush Hour On The Golf Course **30**
The increase of golfing pressure puts a premium on turf management and the organization of maintenance work.

Target: Railroad Weeds **36**
Trackside vegetation offers many opportunities for the custom applicator. Richard W. Fields explores a number of possibilities of getting onto the business.

Midwest Regional Turf Conference **40**

Netting for Sod: Reality From Imagination **54**
Sod crop turnaround time may be cut in half by using plastic netting to anchor the turf roots. Cal-Turf, California's largest commercial sod producer, researches the practical aspects of this industry innovation.

Editorial 6
Government News/Business 10
Book Report 10
Letters to the Editor 13
Green Industry Newsmakers 32
Sod Industry Section 54
Insect Report 62
Meeting Dates 67
New Products 68-69
Industry People on the Move 73
Classifieds 75-76
Advertisers Index 76
Trimmings 78

The Cover

Spring is the time to initiate spraying programs. Weeds, trees, and turf require care. Our Cover shows tree insect control with a truck-mounted spray rig manufactured by Lockwood.

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For More Details On U.S. Borax Circle (109) On Reply Card
For More Details On Preceding Page Circle (142) On Reply Card

Take the first step toward more efficient grounds maintenance. Send for your brochure now!

Not even the Red Baron could out-maneuver a HUSTLER!

EXCEL
HUSTLER
MODEL 272 AND
HILLSIDE MODEL 360

Dual Hydro MOWERS

for commercial, institutional and governmental groundskeeping

You may already be aware of our HUSTLER mower—how it practically eliminates hand trimming because of its outstanding maneuvering ability. But you need more facts about this unique machine in order to judge its possibilities for the work you have to do.

In this brochure you can see the machine mowing around trees, under bushes and along walls. You can study a diagram showing how our dual hydro transmission gives independent control to each drive wheel. We tell you a HUSTLER can do the work of three mowers. We say it takes one-third the time you may now be spending with more pieces of equipment.

But all we hope is that this brochure will help you make the decision for a demonstration. You have to experience the sensation of operating a HUSTLER, and test its capabilities. See how its mowing deck works up close to obstacles. You can convince yourself it will outperform any other equipment you may be considering.

NEW—for Dikes, Cloverleaf or Slope Maintenance

HILLSIDE MODEL 360 has all the HUSTLER features plus an operator platform that is self-leveling. Even on a 30° slope both drive wheels have equal weight distribution for increased side-hill stability. A separate hydraulic mechanism keeps engine, canopy and rider level. Besides the flail mower, a six-foot rotary and other options are available.

For More Details Circle (114) on Reply Card

So take the first step. Send now for this brochure, especially if you're faced with a bigger work load or a smaller work force. We'll send along the name of your nearest distributor who will be glad to arrange a demonstration. HUSTLER approved under Federal GSA contract (GS-OOS-05347).

For More Details Circle (115) on Reply Card

Phone 316-327-4911

EXCEL INDUSTRIES, INC.

Box 385, Hesston, Kansas 67062

Where Are They Now?

Where are they now?

Where are the leaders whose energetic efforts resulted in the energy crisis. They are the environmentalists who clearly campaigned against the use of lead in gasoline because it produced harmful emissions. Their efforts brought about industry upheaval and knocking engines. They are the ones who monitored discharges from factory stacks and brought suit after suit against industry. They are the ones who forced these factories to convert from coal to less polluting fuel sources such as oil and gas.

Where are the leaders who so violently upheld the cause to clean up our rivers and lakes. They are the alarmists who reported increasing levels of mercury in our waters and brought on the mercury scare.

Where are the leaders who led the fight to ban all pesticides and their uses. They are the instant ecologists who entered the learning institutions and convinced unknowing students that all environmental protection chemicals were unsafe. They are the ones who put the doubt in teachers' minds about the quality of our American food supply. It was they who banned all uses of DDT because it alledgedly multiplied in the food chain. The net result has been devestation of forests by gypsy and tussock moth and the loss of thousands of acres of timber for lumber. They are the ones who magically transformed a gullible public into believing that organically grown crops (free of pesticides) were better for your health. They are the ones who failed to tell the consumer that a great many crop protection chemicals are organic based compounds. Their diligent efforts brought sweeping government controls on the registration, sale, application, use and disposal of crop and turf protection chemicals. These absentees cleverly instilled in the consumer that the farmer, applicator, weed control professional, arborist — yes, even our universities — deceived the public for wanton gain.

Where are they now? We followed their findings. Many of their points were good and we supported them. Government agencies, pollution boards and more to record, monitor, meter and regulate were created. The task of environment preservation was challenging and to be against it was like being against motherhood. Who could argue with it? Yet this implosion of environmental awareness, once it began, has been conducted from the rear. Our current situation forces us to seek for leadership to drive this gigantic machine out of the present energy rut. Leaders are needed to chart the course of the future. The job is only partially completed. Where are they now?

Certified

Manhattan

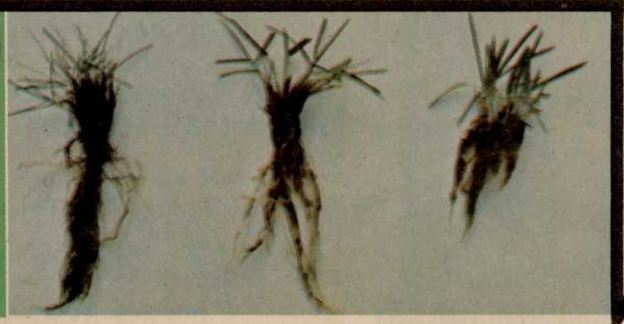
Turf Type

PERENNIAL RYEGRASS

Manhattan perennial ryegrass was selected and developed by Dr. C. Reed Funk, Rutgers University. Manhattan develops a uniform dark green, leafy, dense turf with leaf blades finer than most Kentucky bluegrasses. Excellent for hard use areas such as tees, green aprons, cart path flare areas and hard use problem areas. Mowability ratings are excellent.

CERTIFIED MANHATTAN IS GROWN BY THE
MANHATTAN RYEGRASS GROWERS ASSOCIATION
P. O. Box 145 • Hubbard, Ore. 97032

EXCLUSIVE MARKETING AGENT
WHITNEY-DICKINSON SEEDS, INC.
52 Leslie St. • Buffalo, N. Y. • 14240



Manhattan's fine texture is illustrated in this comparison.
Left: FINE LEAF FESCUE
Center: MANHATTAN PERENNIAL RYEGRASS
Right: KENTUCKY BLUE GRASS

Manhattan blends well with other grasses. Here it is combined with Bluegrass.

Manhattan is outstanding for hard use areas. Cartpath flare area reseeded with Manhattan perennial ryegrass.

It's Kid Proof!

For More Details Circle (126) on Reply Card

The very latest in go carts.

Just what you need for carting, for hauling, for getting personnel from one work area to another.

Ray McMicken (with B. Hayman Company in Santa Fe Springs, California) is one of us 74 Jacobsen Distributors who can tell you all about these new hauling vehicles.

Take the big, one-ton capacity UV4 shown up front. It lets you haul dirt, sand, fertilizers or chemicals to anywhere you want to put it. And that means anywhere because it's an articulated 4-wheel drive vehicle.

Also, it features a hydraulic dump, a rugged torque converter transmission with two forward and one reverse speed including 20 MPH transport, and powerful hydraulic brakes. It even has an hour meter, along with other things you should know about, like top and bottom tailgate hinges.

For smaller loads like tools, equipment and personnel, the Cruiser 2 has a payload of 1/2 ton. It seats two and goes between work areas as fast as 12.5 MPH.

It also has a torque converter transmission with two forward and one reverse speed, hydraulic brakes, plus a ground-hugging design for safety.

Ask your Jacobsen Distributor for a demonstration at your place. He'll show you vehicles that have real get-up-and-go.

If you're not convinced, he'll get up and go.

Your Jacobsen Distributors.

Before we sell it, we buy it.

For the name of the distributor near you, write: Jacobsen Turf Distributor Directory, 1721 Packard Avenue, Racine, Wisconsin 53403.

For More Details Circle (153) on Reply Card

Government News / Business

The Environmental Protection Agency issued notice in early March for public comment on the application of 2,4-D to control water hyacinths on portions of the St. John's River in Fla. Applicator of the herbicide is the U. S. Army Corps of Engineers. The Corps has applied for a specific exemption of the Federal pesticides law to use the herbicide. Presently, 2,4-D is not registered by EPA for use in moving waters. The exemption applied for by the Corps appears under Section 18 of FIFRA as amended, which permits state and Federal agencies to employ unregistered uses of pesticides under emergency conditions.

Ciba-Geigy Corporation has tendered an offer to purchase at $17 cash per share net all available shares of common stock of Funk Seeds International, Inc., provided at least a majority of outstanding shares are tendered. Funk Seeds, a major producer and marketer of seed corn and other seed, has announced the tender offer would be mailed to the stockholders. No recommendations by the board of directors of Funks is being made to the stockholders.

Dateline, March 12, 1974: Attorney Bill Harding, counsel for the American Sod Producers Association, has discovered a small coup at work in the Federal Energy Office. Energy Czar Simon's men are quietly revising the definition of "agricultural production." Tentative revisions do not include sod production or horticulture! The result will be that sod producers and those in a horticultural related business would not be entitled to "fuel for 100% of current needs." ASPA executive secretary Bob Garey recommends calling or writing your U. S. senator or representative about the "proposed" change in definition.

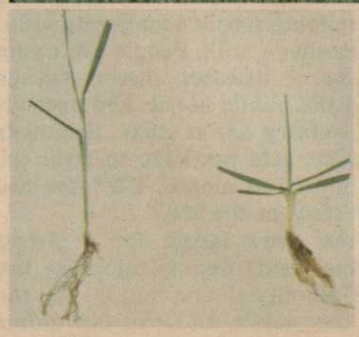
EPA has just published proposed standards describing the types of knowledge that pesticide applicators will be expected to have in order to qualify as certified applicators. Originally scheduled to be published about six months ago, the standards have been the subject of much controversy and discussion. Basically, the standards apply to private and commercial applicators. Neither will be required to have completed any particular level of formal education. EPA has proposed, however, the commercial applicators be required to pass written exams. Private applicators would have to show that they can read and understand pesticide labels. This may be no small feat, considering the level of understanding to many labels is well above that of a high school student.

Get set for another round on fuel....this time from the folks who make additives. EPA has proposed regulations (Federal) to require registration of fuels and fuel additives. Purpose says EPA is to establish procedures to obtain basic information about fuels and fuel additives. This info is needed to determine the effects which they, or their combustion products, may have on emission control devices (particularly catalytic converters) or on the public health or welfare. The muscle behind the regulations, if approved, would prohibit the sale, or introduction into commerce, of fuels or fuel additives designated by EPA. Public comment on the proposed regulation is invited. Write to: Office of Fuel and Fuel Additive Registration, EPA, Research Triangle Park, N. C. 27711. Oh yes, submit comments in triplicate.

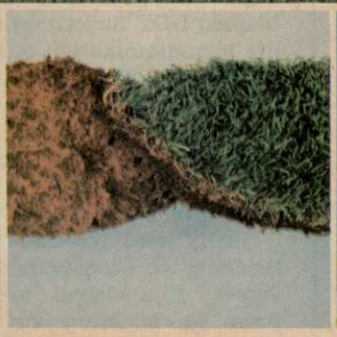
Fylking - outstanding as its name!

Internationally tested over 12 years, Fylking has proven to be exceptional — exceptional as a mixer in any lawn seed mixture, exceptional in producing a thick turf. The dense rhizomatous root system knits itself together so weeds cannot penetrate. Low-growing, abundant tillering, fine textured Fylking has greater disease resistance and drought resistance. It greens earlier, is greener in summer, stays green longer into fall. Can be cut low as ¾ inch (even ½ inch) and thrive with less watering.
Check tests shown below:

FYLKING KENTUCKY BLUEGRASS
U.S. Plant Patent No. 2887



1. Comparison of Fylking (right) with another elite bluegrass plant.



2. Cross section shows thick, luxuriant turf, fine leaf texture and brilliant green.

3. 11-day seedling comparison Fylking and another elite Kentucky bluegrass.

4. Leafspot comparison of disease-free Fylking and other elite bluegrass.

Another fine product of Jacklin Seed Company

For More Details Circle (110) on Reply Card

COMPARE

Our happiest M-437 Trencher customers are those who weren't Vermeer M-437 customers before!

Sure, it sounds strange . . . but anyone who has ever bought multi-purpose trenchers before, knows where the profit and loss is made: in the shop. And that's why "The Diggin' Dutchman's" dependable M-437 looks so much better on the rebound. Where's the difference? Machine weight and stability have a lot to do with it; but also compare chain strength, positive chain drive and center-pivot articulation . . . plus a whole list of protection-engineered features that many never considered or took time to design. Vermeer craftsmanship? After 25 years of trenching and underground experience **on the job,** we'd like to think so. Next time compare . . . you'll be surprised. You may even be shocked!

Our 25th Year

THE DIGGIN' DUTCHMAN

VERMEER TRENCHER-PLOW DIVISION
7204 NEW SHARON RD. • PELLA, IOWA 50219

Green Industry Book Report

The DDT Myth: Triumph of the Amateurs, by Rita Gray Beatty. Published by John Day Company, New York, New York.

Dichlorodiphenyltrichloroethane. Or DDT. You know what it is. You've heard about it. But chances are your information is based on claims by uninformed or misinformed overnight specialists.

Finally, a book has been written presenting documented evidence, pro and con, on the real story behind the ban on DDT. Rita Gray Beatty traces the history of DDT from Paul Muller, recipient of the 1948 Nobel Prize for his discovery of the lifesaving effect of DDT, to the June, 1972 ban by William Ruckleshaus and his Environmental Protection Agency. With a wealth of quotes and references, the 200-page, $3.95 paperback book points out the strengths and weaknesses in modern pest control practices.

Beatty claims the chlorinated hydracarbon we call DDT, the chemical that has caused a wave of passions and borne such grave implications for the future of mankind, has saved more lives than penicillin. Her claim is based on the control of the anopheles mosquito, carrier of malaria parasites, by the World Health Organization. Malaria is still the number one killer of mankind.

Insects, with their amazing adaptability, have contested our mastery of nature from day one. According to Dr. S.A. Forbes, entomologist, "Insects had, . . . all the advantages of a possession of the field when the contest began, and they have disputed every step of our invasion of their original domain so persistently and so successfully that we can scarcely flatter ourselves that we have gained any very important advantage over them . . . "

Beatty presents a sound case for the control of the gypsy and tussock moth with DDT. She documents case after case of uncontrollable insect damage to forests and our lack of economical chemical control. "The farmer like the forester, has many chemical pesticides available to him. He may use them if they will control the damaging insects on that crop and if they are economical enough to leave him a reasonable profit. . . . A safe, inexpensive, long lasting pesticide can spell the difference between a marketable crop sold at a profit or a loss."

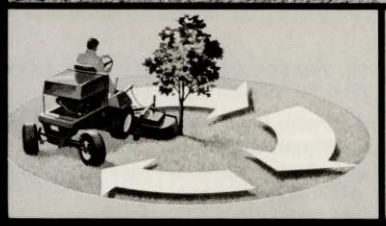
One question reoccurs throughout the book: How can we ban the use of DDT when there is no equivalent substitute? For over ten years, false prophets, overnight ecologists and environmental alarmists have blamed DDT for crimes ranging from endangering wildlife to contamination of mother's milk. People are dying world-wide from insect-borne diseases, insects ravage our forests and crops and the public health and agricultural wealth of our own country are at stake. Scientists have developed no effective, safe pesticide to rival the success of DDT and yet until last month, DDT use has been forbidden in every state in the US.

Beatty also rebukes the news media for a strong tendency to accentuate the "bad" and to minimize the "good." She blames the emotional assertations in the press for misinforming the public and causing unfair pressure to ban DDT. She urges reasonable rather than emotional legislation regarding agricultural chemicals. She wrote a book that represents a plea for sanity, prudence and proper perspective on the part of all of us.

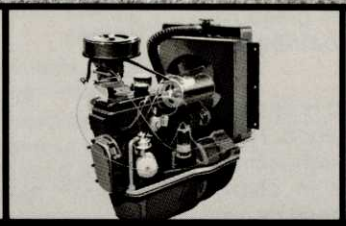
For More Details Circle (124) on Reply Card

"Doesn't Toro make a high-capacity rotary that's a trimmer, too?"

Toro does. Like nobody else.



ZERO TRIMMING RADIUS



WATER-COOLED ENGINE

HYDROSTATIC DRIVE

It mows big and handles small, this Groundsmaster 72.

The three rotary blades mow a swath nearly 6 feet wide, yet the trimming side of the cutting unit turns on zero radius.

There's a 4-cylinder, in-line, water-cooled industrial engine for long life at low maintenance cost.

And the drive is hydrostatic: you get instant forward/reverse and infinitely variable speed control.

Ask yourself what you're looking for in a high-capacity trimming mower — in performance, safety, ease of service and value.

Then look at all Toro builds into the Groundsmaster 72 — in detail, on the next page.

TORO® GROUNDSMASTER 72

TORO® GROUNDSMASTER 72

Printed in U.S.A. 74-87-T

What matters most in your buying decision — performance, safety, ease of service, or value?

The features and benefits of the Groundsmaster 72

PERFORMANCE High-capacity: cutting unit mows a 70½ inch swath that covers up to 30 acres of turf a day. High horsepower (19.8 net) 4-cylinder water-cooled industrial engine has power to spare for maximum work output. Durable drive train has industrial-quality transmission and automotive-type differential for continuous high speed operation. Trimming capability: Ross steering gear assembly turns rear wheels for precise control. Cutting unit is offset to right and deck is rounded on right side to permit trimming to within 1 inch of trees and under overhanging shrubs without interference to operator. Hydrostatic drive gives infinite speed control with instant forward/reverse for superior trimming ease and control. Excellent finished appearance: free-floating deck follows ground contours for a smooth, even cut. High-lift blades lift even the longest grass for a cleaner cut. Deep deck permits immediate discharge of clippings in powerful airstream, distributes them evenly.

SAFETY Automotive-type operator area: all switches and gauges are grouped on panel at operator's right for maximum convenience. Large steering wheel and single foot pedal control of forward/reverse simplifies handling, reduces operator fatigue. Operator is positioned up front for a clear, unobstructed view of cutting unit and mowing area. Seat has high-back with molded foam cushions for extra operator comfort, and is adjustable to each operator's need. Prime mover has four wheels and low center of gravity for greater stability, individual wheel brakes for more sidehill control and exceptional maneuverability. Top speed of 10 mph contributes to overall safety of unit.

EASE OF SERVICE Engine area is open and at waist height for easy maintenance. Hydrostatic transmission is a closed, self-lubricating drive system with no gears to change, no clutch to slip. Monitoring gauges on critical components give sight and sound signals to prevent damage to engine. Snap-off cowling for easy access to battery. Seat flips forward for easy access to transmission. Simple design of cutting unit means components are easy to get at for maintenance.

VALUE Optional 60-inch rotary broom is the first of a family of accessories designed to reduce equipment investment and maintenance cost, as well as save storage space. And the Toro parts and service system, recognized as the finest in the industry, backs the Groundsmaster 72 all the way.

Add it up: this Groundsmaster 72 combines a high-capacity rotary and trimming mower for superior performance; it gives you safety features found in no other machine of its kind; it's specially designed for ease of service from the prime mover to the cutting unit — and that, with the versatility of optional accessories and the security of the Toro parts and service system, adds up to another solid Toro value — the Groundsmaster 72.

Get your order in now — or let us know when you'd like a demonstration.

SPECIFICATIONS*

PRIME MOVER:

Engine: CONTINENTAL, 4-cylinder, water-cooled, forced recirculating system. 19.8 net hp @ 3,450 RPM, 12 volt electrical system with generator. 47.8 cu. in. displacement. 8.5:1 compression ratio. Oil system full pressure — gear driven oil pump. Replaceable oil filter. Forged steel connecting rods. Cylinder liners — wet type — cast iron — easily replaceable. Fuel system — down draft type carburetor. Governor — mechanical.

Battery: 12 volt, 54 plate, 50 Ampere hour capacity.

Steering: Ross Gear Steering Gear Assembly. 15" steering wheel.

Fuel Capacity: 9.0 gallons.

Weight: 1,600 lbs., dry weight with cutter deck.

Ground Speed: 0-10 m.p.h., infinitely variable.

Brakes: Individual wheel brakes and parking brakes with dynamic braking through propulsion system.

Gauges: Hour Meter, Ammeter, Water Temperature — safety light and buzzer, Oil Pressure — safety light and buzzer.

Controls: Hand operated throttle, choke and PTO.

Tires: (2) Rear Steering Tires — 16 x 6.50-8 — 2 Ply, Rib. (2) Front Traction Drive Tires — 23 x 8.50-12 — 2 Ply, Xtr. Demountable drop-center rims.

Propulsion: Infinitely variable hydrostatic transmission. Mounted on GT 20 Dana Axle — 20.9:1 ratio. Ground speed 0-10 m.p.h.— infinitely variable. Single foot pedal control of ground speed and forward-reverse.

Seat: High back, replaceable molded foam back and seat cushions. 5" fore-aft slide adjustment.

Overall Dimension with Cutter Deck: Height — 50" to top of steering wheel. Width — 75". Length - 111". Wheel base — 48". Tread width — Front & Wheels — 36½". Rear & Wheels — 37¼".

Accessory Drive: Splined-universal PTO shaft.

CUTTING UNIT:

Height of Cut: 1½-6" adjustable front and rear, ¾" increments.

Width of Cut: 70½".

Cutter Housing: 11 Gauge steel, 6" deep with a 2" step. Reinforced with 2" x 2" x 3/16" angle iron. Transfer spring for counter balance.

Cutter Drive: PTO Driven Gear Box with 1.45:1 spiral gears on center spindle. "B" section drive belts to end spindles.

Cutter Spindles: 1" diameter shafts turning on two externally sealed greasable ball bearings.

Blades: Three 25" long, heat-treated steel, suction-lift blades.

Lift: Hydraulic.

Cutter Wheels: 4 Gauge wheels for maximum contour following ability. Rear caster — 6" x 2½". Front caster — 10.25" x 3.25".

Optional Equipment: 60" hard surface broom.

*Specifications and design subject to change without notice.

I have now submitted my annual report to the members of Connecticut Tree Protective Association, but I thought you would be interested in our activities.

To begin with, secretary Oscar Stone, Charlie Barr and I have appeared before sub-committees of the Connecticut State Legislature. I met with individual legislators many times in response to bills in the State concerning our profession and its members.

Jerry Stone and I attended the planting of a memorial oak tree at Cromwell, Connecticut in honor of Neal Millane our first president.

I have met with Dan Lufkin, former Commissioner of Environment, and discussed with him our side of our problems. Subsequently, our Secretary Oscar Stone wrote a wonderful letter to him explaining our operations concerning the spraying we do.

The severe ice storm that covered the State last December 17th and 18th kept our members busy and will continue to keep us busy for quite awhile. We received a letter of thanks and appreciation from Antony Wallace, President of Conn. Light & Power Co., for the services rendered by our members during the ice storm. We also received national publicity on NBC television showing member's equipment working under adverse conditions during the ice storm.

Jerry Stone and I appeared on the New Haven Station WELI on John Birchard's talk show on Sunday, Dec. 23rd, for two hours — 6 to 8 o'clock. We answered many questions and made comments on the ice storm, informing the general public not to panic and to avoid doing business with the fly-by-night tree men. Hire only our members who are reliable and charge fair prices. This not only put our organization before the public but kept them well informed about who and what we are. John Birchard of the Radio Station asked if Jerry and I would appear again to participate in another two hour talk show . . . **John Stashenko, President Connecticut Tree Protective Association.**

Your item on the Agrico price increases in the "Government News/Business" section of your last issue (Jan. 1974) omitted some important information and created some misunderstanding for Agrico in the trade.

The points in order of importance were: 1. Although the price increases were effective January 1, the company said it was honoring the lower prices on orders received and scheduled for delivery January 31, 1974. 2. All Agrico customers were notified in advance of the price increase and given an opportunity to place or increase orders for delivery by January 31 at lower prices. 3. Only part of the orders at lower prices for delivery by January 31, were able to be filled from inventories of products purchased and manufactured at lower cost and that Agrico was absorbing the additional costs of fulfilling all of the orders for delivery by January 31.

The absence of this information apparently led a number of your readers to conclude that what Agrico had presented to its dealers as a generous way of handling the price increase problem, was based on nothing more than the company having ample supplies of lower priced products from which to fill orders. This was not the case. . . . Agrico did indeed absorb significant costs in carrying out this policy for the benefit of its dealers. . . . **Merton Fiur Associates, Inc., Merton Fiur, president.**

TIME TO RENEW: Your Renewal Card Is Bound In Above

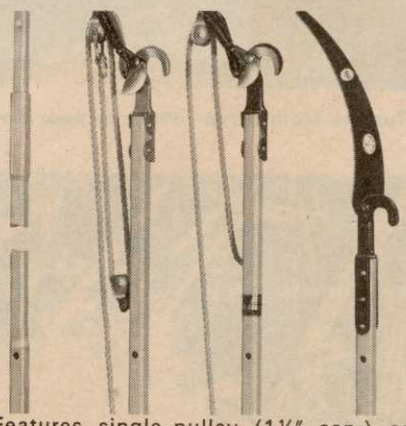
WEEDS TREES AND TURF is sent to you because you and your business are part of the Green Industry. You receive this magazine on a free basis.

To continue receiving each issue at no cost, we need your okay. Subscriptions are limited to bonafide members of the Green Industry. If you operate commercially within this dynamic marketplace, you qualify.

MAY WE HEAR FROM YOU TODAY? The attached card above is for your use. Please check the type of business you are engaged in, sign the card and drop it in the mail. We'll do the rest. We want your continued support. If you returned the qualification card in the January issue of WEEDS TREES AND TURF, please disregard this notice. Thank you, Arthur V. Edwards, Publisher.

(This renewal notice is a requirement of our national auditing service to verify that you are a member of the industry and that you wish to receive the magazine.)

BARTLETT
Tree Trimmer with Fiberglass Handle



Features single-pulley (1¼" cap.) or double-pulley (1½" cap.) tree trimmer head section, and square-end mount pole saw head section with 4 ft., 6 ft. or 8 ft. extension sections with built-in, ALL-FIBERGLASS CONNECTING SLEEVE, and polypropylene rope.

Catalog free on request.

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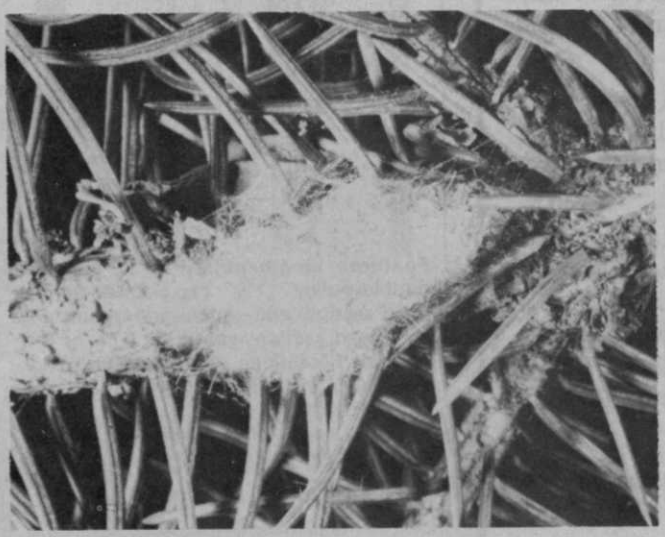
For More Details On Preceding Page Circle (103) On Reply Card.

For More Details Circle (128) on Reply Card

Contingency Use Of DDT Granted

Douglas Fir Tussock Moth Pupa

Tussock Moth Larva (Photos by Roger Akre, Wash. State University.)



Tussock Moth Cocoon

Russell E. Train, Administrator of the Environmental Protection Agency, has granted the U.S. Forest Service an emergency exemption from the prohibitions of the Federal pesticides law for the contingency use of DDT against the tussock moth in the States of Oregon, Idaho, and Washington.

Announcing his decision at a news conference in Seattle in late February, Train emphasized that permission "is not a directive from EPA that DDT should be used this summer against the tussock moth. It is the hope of EPA that an actual emergency will not arise... at the time of egg hatch and that spraying will not be necessary."

Whether DDT will, in fact, be used this spring depends on the outcome of the Forest Service's ongoing biological evaluation of the extent of the moth infestation and the levels of the moth's natural enemies. DDT would be used only if the Forest Service determines that an actual emergency exists which will not be controlled naturally.

On January 3, 1974, the Forest Service requested contingency authorization for treatment of 650,000 acres of Douglas fir forest in Washington, Oregon, and Idaho, including the Colville Indian Reservation. The Forest Service request specified that the pesticide would be applied by helicopter at the rate of 0.75 pounds per acre. Spraying would begin soon after egg hatch in late May or early June and would end around June 30.

The Forest Service was required to seek an exemption from the Federal pesticides law for the use of DDT. Effective December 31, 1972, EPA banned most uses of that pesticide. Last year, the Agency denied a similar Forest Service request for DDT use on the tussock moth based on predictions that the moth population would collapse without chemical control as a result of a naturally occurring virus. Contrary to expectations, however, the natural virus did not achieve larval kills sufficient to control the total moth population.

Train noted that the 1973 failure of the virus to afford control and the inconclusive results of tests on alternative control mechanisms "put decision into a far different light."

"After examination of all of the facts," he said, I conclude that the potential for a serious emergency this summer is present, and that DDT is the most practical control available."

In granting an exemption for the use of DDT this year, Train imposed numerous restrictions on the actual Forest Service spray program. He required as a condition of appoval that testing of alternatives to DDT be conducted. Among the restrictions are:

—maintenance of an unsprayed buffer strip of at least 200 feet long live streams and waterways.

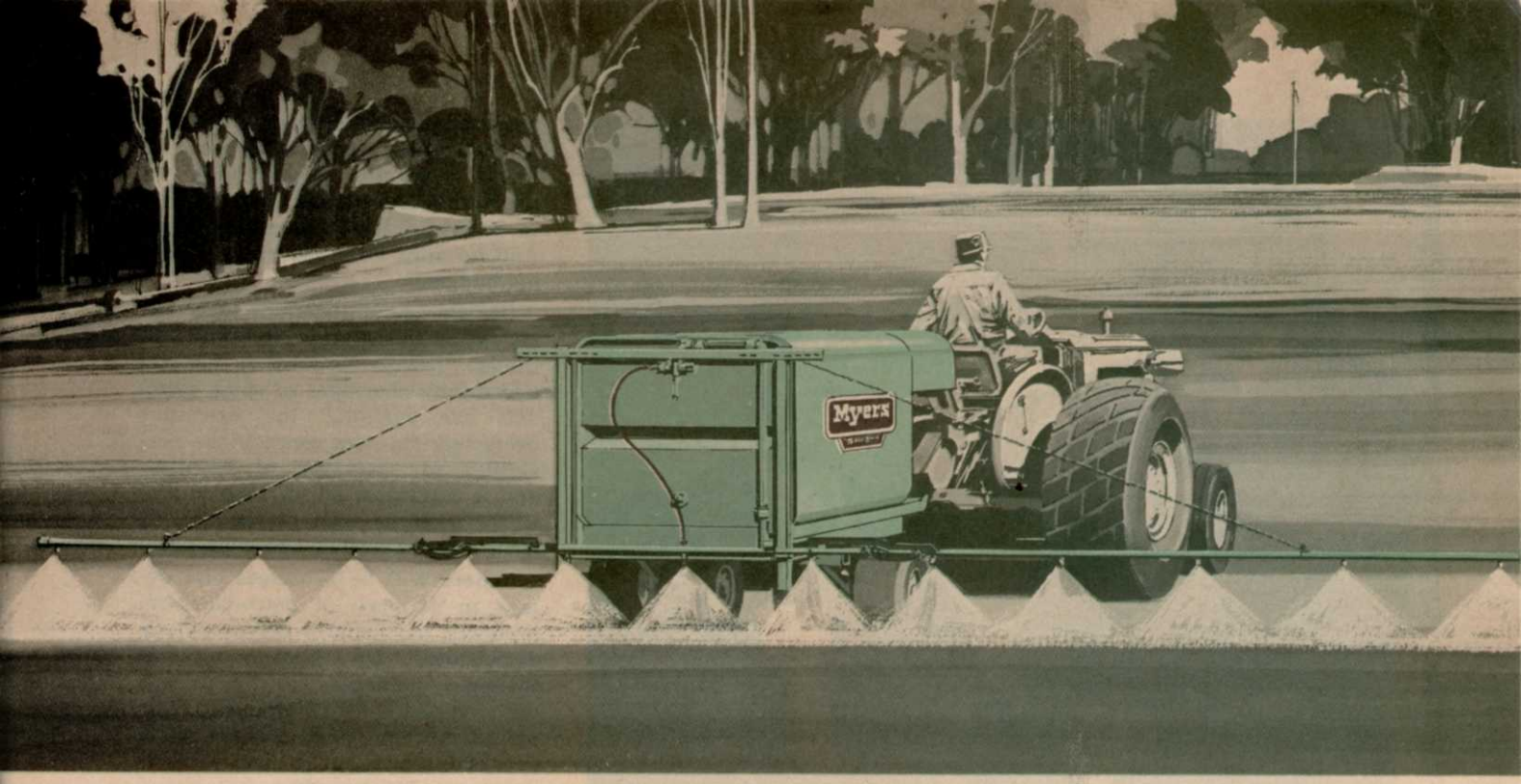
—marking of waterways with flags and other devices to insure that they will not be sprayed.

—no spraying in winds exceeding 6 mph, or where temperatures inversions exist.

—placement of warnings in public places within all areas to be sprayed, giving the date, time, and duration of the spray project.

In imposing research requirements as a condition of his approval of the Forest Service request, Train said, "It is to remedy the inadequacies of past USDA per-

(continued on page 70)

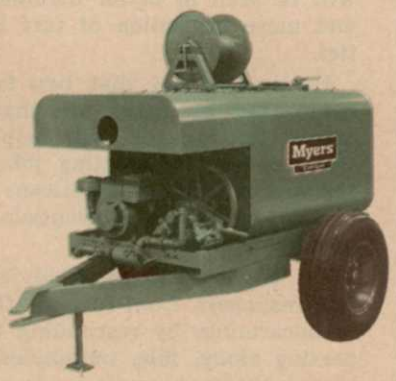


We'd like to lay down a few facts before you buy a new sprayer.

Looking at sprayers? Here are some facts you should consider about the Myers TL10E3 TurfLine, a sprayer especially suited to custom lawn and landscape service. **FACT NO. 1.** Consider its versatility. The TL10E3 is ideal for chemical applications on trees, shrubs, turf maintenance and even right-of-way spraying. **FACT NO. 2.** Consider its mobility. The TL10E3, with high flotation running gear, performs almost anywhere. Use it on park, golf course, lawn, landscape, nursery and most other spraying jobs on your schedule. **FACT NO. 3.** Consider its dependability. The TL10E3 is equipped with quality features proven in years of service on other Myers sprayer models – components like Myers Du-All pump (10 GPM, 500 PSI), 300 gallon epoxy coated steel tank, built-in suction strainer, hinged 21′ spray boom, arc welded box frame and many more – plus a choice of optional accessories. For more facts, call your Myers distributor. You'll find there's nothing else around like the TL10E3. That's a fact you should consider too.

Myers

The name that works for you.



TL10E3 TurfLine Sprayer

For More Details Circle (158) on Reply Card

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Dr. H. O. Kunkel, (1) dean of the college of agriculture at Texas A&M University, congratulates Dr. James R. Watsin, vice president of consumer relations for the Toro Company. He was keynote speaker at the Texas Turfgrass Conference.

The Energy Crisis And The Turf Industry

WHAT caused it? How will it affect us, this energy crisis?

For whatever its causes and for whatever its effect, the energy crisis has become a topic of considerable discussion throughout the turf industry. One thing seems apparent—every segment of our country, including the turf industry, is being affected by it in some way or another.

There will be changes and alterations in the life style Americans have enjoyed for the past several decades. The energy crisis is one of the biggest factors contributing to today's uncertainty about the future.

At the 28th annual Texas Turfgrass Conference, held last December at Texas A&M University, one of the main topics of interest was the effect of the energy crisis on the turf industry. Over 350 turfgrass managers found there were no easy answers to the problem, but some light was shed on the subject by the conference's keynote speaker, Dr. James R. Watson, vice president of customer relations for the Toro Company.

Watson saw the energy situation as a turfgrass industry opportunity. He spoke with confidence that the events of the past months will allow the industry to adjust without undue hardship.

Where is the turf industry heading? Dr. Watson thinks the beneficial effect of the energy situation will be seen in better maintenance and more utilization of turf facilities.

He pointed out that two factors overlooked by many are that demands for luxuries will help fuel the economy by creating jobs and the vast majority of Americans want and enjoy these non-essentials such as turf facilities.

Dr. Watson had some advice for turf managers. Dont fuel the flames of uncertainty by responding to, or passing along, idle, unfounded and often distorted rumors. In other words, don't become an alarmist.

"Keep abreast of all new developments in turf and related fields," he said. Emphasizing management, he continued, "The turf manager must know how much it costs to grow and to maintain his turf facility at the standard or level desired by his club or controlling organization. He must know what his expenditures for equipment and supplies will produce in terms of lower operating costs. And he must be prepared to defend his budget."

Certain generalizations are expected as the energy situation continues. "Delays in delivery but not necessarily shortages of some products are evident," the executive predicted. He does concede the possibility of shortages of fertilizer and is certain of an increase in fertilizer costs as well as the cost of most other materials and supplies.

"There will be shortages and delays in delivery of petro-chemical products, particularly polypropylene derivitives." Dr. Watson advised turfgrass managers to be patient with suppliers, distributors and their manufacturers. "They will be doing everything possible to meet turf industry needs," he said.

"We will see tighter budgets and higher prices in general. And on top of this, there will be increased usage of most turf facilities. For those that do not experience increased usage, a change in their operating format is inevitable. But this will not necessarily be harmful. In fact, for the few facilities that experience decreases in utilization, there will be an opportunity to upgrade, repair and improve their facilities," he commented.

Decreased utilization may preclude the necessity of restricting or limiting the number of visitors to those facilities that already support maximum numbers.

"Reduced or limited travel will intensify the use of local, readily accessible golf courses and parks," Dr. Watson said.

The possibilities go on.

"It may speed the development and enjoyment of 'bowls'—outdoor bowling—a highly popular sport in other parts of the world."

And on.

"The resort golf course may experience more intensive play, because once there, the patron will spend most of his time at the facility rather than taking off in his automobile for one or two day sightseeing trips. The resorts will be finding ways to get their customers to the facility."

The Toro official said besides the shortages of petro-chemicals and delays in some deliveries, the energy crisis will make it increasingly necessary to stock and to inventory critical parts. "There will possibly

(continued on page 44)

Chipco Spot Kleen is the systemic fungicide for prevention and control of dollar spot, Fusarium blight, large brown patch, copper spot and stripe smut.

Its long residual control makes a program based on Chipco Spot Kleen effective and economical. And Chipco Spot Kleen has a wide margin of safety to turf.

Once you use a Chipco something, you'll use Chipco everything.

Rhodia
CHIPMAN DIVISION

For More Details Circle (156) on Reply Card

David Wolfard, a turf management student at Oklahoma State, conducted the nematode control test. The area above was treated with Dasanit 15G at the rate of three pounds per one thousand square feet. Chart below shows results.

Nematode Control Pays

By DR. R. V. STURGEON JR.
Extension Plant Pathologist
Oklahoma State University

NEMATODE damage to turf has been recognized as a problem in many of the northeastern and southern states for several years.

High nematode populations are found in the putting greens of most of our older golf courses in Oklahoma. Sometimes these heavy populations of Stylet, Spiral, or Ring nematodes can be associated with wilt, lack of vigor, off-color, and thinning of the grass.

These symptoms can be confused with poor soil aeration, drought, low fertility, and insects or disease. To convince the superintendent that his problems were caused by a tiny worm-shaped animal feeding on the root system has been difficult, to say the least.

In past years several attempts have been made to demonstrate the effects of controlling nematodes. Soil analyses showed that we were reducing the nematode populations in the various control studies; yet, little difference could be noted in turf density. We could only suggest that the high maintenance program carried out on the courses we were working with may have masked the nematode damage.

In an effort to demonstrate the effect of nematode control on bentgrass putting greens, three greens were selected at the Westwood Park Golf Course in Norman, Oklahoma. The study was carried out by David Wolfard, a turf management student at Oklahoma State University. This course was being maintained under one of the better programs in the state and had what was considered moderate to high populations of Ring *Criconemoides sp.* and Spiral *Helicotylenchus sp.* nematodes.

Dasanit 15G, being the only granular nematicide suggested for use in Oklahoma, was applied at the highest suggested rate at various times during the season to established Penncross greens. Dasanit 15G at three pounds formulation per 1000 square feet was applied April 4 on the south one-half of three greens. A similar rate was applied July 20 on the east one-half of the same greens.

Hence, each green consisted of four treatments: 1. early, April 4; 2. late, July 20; 3. early + late, April 4 and July 20; and 4. no treatment. The product was distributed evenly over the greens in each treatment with a 21 inch Gandy Turf Tender and drenched in with one-half inch of water.

Soil samples were taken during the season for nematode analysis and processed by the Oklahoma State University plant disease diagnostic laboratory.

To determine the effect of nematicide applications, grass clippings were taken late in the season from a 125 square foot area in each treatment. Root depth measurements were made from samples taken at

(continued on page 50)

Treatment, rate, and Time of Application	Nematode Population Rating[1] — Dates Samples Were Taken: April 28	May 16	June 6	June 28	July 19	Aug. 15	Sept. 24	Root Depth[2] in mm	Clipping Wts. in gms
Dasanit 15G 3 lbs/ 1000 ft									
Early (April 4)	1	1	2	2	4	4	4	175	45
Late (July 20)	2	2	5	6	5	5	5	170	57
Early & Late (April 4 & July 20)	1	1	2	2	2	2	2	158	125
No Treatment	4	5	8	8	7	7	9	80	30

[1]Ring and Spiral nematode populations were rated as one unit based on Oklahoma State University diagnostic analysis rating (0—9): 0=None; 1=Trace; 3=Light; 5=Moderate; 7=Heavy; 9=Very Heavy.

[2]Root samples (7"x3"x½") taken near end of season with Noer soil profile sampler.

[3]Grass clippings taken from 125 ft² area, green weight.

The whole-in-one fungicide... Daconil 2787® eradicates the ten key fungus diseases.

Why use two or three fungicides to do what Daconil 2787 does all by itself?

It's the whole-in-one cure for: brown patch, copper spot, Curvularia leaf spot, dollar spot, fading out, gray leaf spot, Helminthosporium leaf spot and other leaf spot diseases, stem rust, pink snow mold (approved in Washington and Oregon) and Alternaria leaf spot (approved in California.)

Many leading golf courses use Daconil 2787 for disease prevention on greens and fairways. It has performed well on over 25 grass species and varieties. You can spray during hot, humid weather without worry when you follow label directions.

No surfactant is needed. Daconil 2787 adheres to the grass blade, resisting washoff from heavy rains or irrigation. Saves you extra applications.

And Daconil 2787 is cleared for disease control on certain ornamentals. Another attractive benefit.

Ask your supplier about Daconil 2787. Or write: Agricultural Chemicals Division, Diamond Shamrock Chemical Company, 1100 Superior Avenue, Cleveland, Ohio 44114.

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For More Details Circle (116) on Reply Card

Turfgrass: The People Pleaser

GCSAA

Speakers Discuss Management, Turf Chemicals, Equipment And Irrigation

The largest turfgrass meeting and equipment and display in the world — the 45th International Turfgrass Conference and Show — was staged at Anaheim, Calif. in mid-February.

The global affair attracted over 5,000 persons from a dozen foreign countries, as well as representatives from every state in the nation. The conference, sponsored by the Golf Course Superintendents Association of America (GCSSA), was at California's Disneyland, where more socializing took place at the bus stops than in the exhibit area.

Highlighting the conference at the Anaheim Convention Center were some 40 speakers whose presentations covered a range of topics including golf course management, technical problems in maintaining top-quality turfgrass, use of plant protectants and automatic irrigation.

One keynote speaker, Gerald L. Langlois, assistant golf cart sales manager for Harley Davidson Motor Company, said an estimated 50,000 golf carts will produce annual rentals of $500 million by 1980.

"The convenience of a golf car has kept membership rosters well filled. The golf car has now made golf 'more fun'. All of the increase in play creates adequate operating budgets and higher salaries for the golf course superintendent. Today, the golf car is the largest source of revenue for most clubs," he said.

Langlois, outlining the impact of the present energy situation, described the competitive struggle of gas versus electric powered cars. "If you choose gasoline power, some of the more favorable features are: more power, greater range, less to operate, fewer maintenance problems, no battery failure problems, greater reliability and less turf wear because of reduced weight. Electric cars in turn offer these features: a quieter vehicle, less mechanical adjustments, no gasoline storage tanks

(continued on page 22)

Get rid of unwanted green growth before it cuts into your profits.

The weed onslaught is just about universal.

An expensive headache.

For utilities, railroads, highway departments, the petroleum industry and industry in general.

But there is a way to control that costly green tide—with Tandex® herbicide.

It's a urea-carbamate compound that gives outstanding extended control over a range of weeds and grasses.

But it's more than weed control.

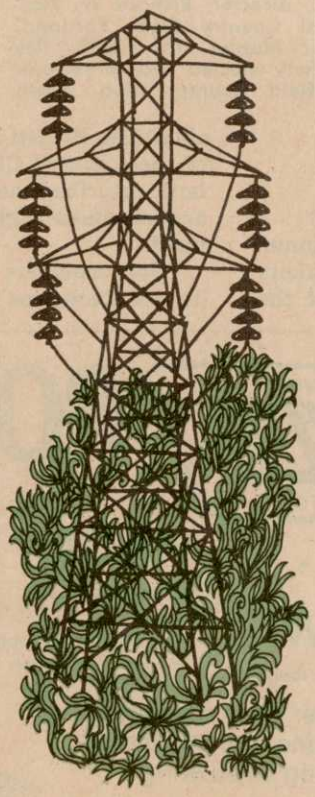
It's brush control, too. If you've got to get rid of really tough brush and woody vines, Tandex gets the job done.

You can spray Tandex or apply it in dry granular form.

Either way you use it, you'll control that costly green tide.

FOR INDUSTRY

FOR RAILROADS



FOR UTILITIES

FOR ROADS

TANDEX HERBICIDE

Agricultural Chemical Division
FMC Corporation, Middleport, N.Y.

FMC

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For More Details Circle (134) on Reply Card

The 1974 GCSSA executive committee (from left) Melvin B. Lucas, Jr., Garden City Golf Club, Garden City, N.Y., newly elected director: Theodore W. Woehrle, CGCS, Oakland Hills Country Club, Birmingham, Mich., director; Richard W. Malpass, CGCS, Riverside Golf and Country Club, Portland, Ore., re-elected director; Palmer Maples, Jr., CGCS, The Standard Club, Atlanta, Ga., newly elected vice president; Charles H. Tadge, CGCS, Mayfield Country Club, South Euclid, Oh., newly elected director; Charles Baskin, CGCS, Country Club of Waterbury, Inc., Conn., newly elected president; Gordon Witteveen, CGCS, Board of Trade Country Club, Woodridge, Ontario, Canada, director; George Cleaver, CGCS, Chestnut Ridge Country Club, Lutherville, Md., newly appointed secretary-treasurer; Clifford Wagoner, CGCS, Del Rio Golf and Country Club, Modesto, Ca.

GCSSA REPORT

(from page 20)

and no dust or exhaust fumes."

The classic dilemma of poa annua was revived when two speakers presented opposing opinions of the plant. Len Hazlett Jr., superintendent of the Country Club, Inc. in Cleveland, described the heartaches, ulcers and sleepless nights caused by the plant.

"Most members of any given club do not know poa annua when they are walking on it. Its incessant demands for water at some of the most undesirable times increase the number of player complaints on the soggy course," Hazlett said.

Bruce A. Sering, superintendent of

(continued on page 28)

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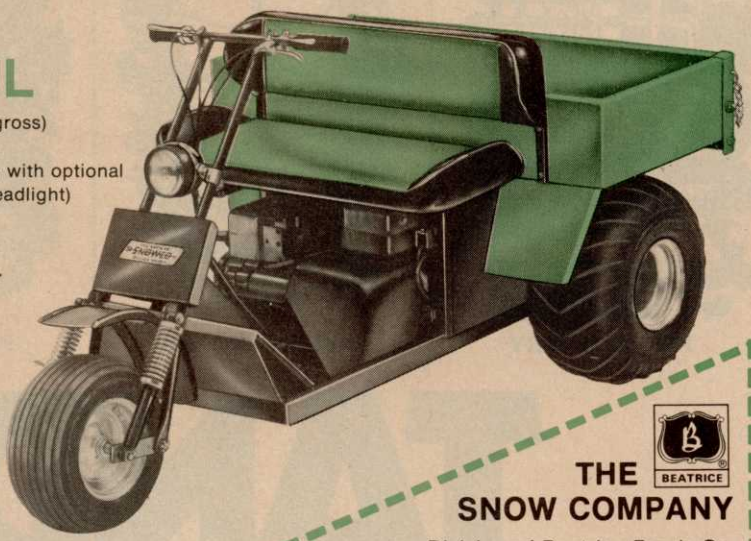
RIDE . . . . . HAUL
(seat for two) (500 pounds gross)

. . . . . TOW
(pulls like a mule!)



(Shown with optional headlight)

Snowco's torque converter drive converts the output of an 8 HP engine into almost unbelievable power for hauling and towing over all terrain.

Wide low pressure tires protect turf from compaction or other damage; and, at the same time, enable the Power-Kart to buck through mud and sand.

Save hundreds of dollars in time plus (as compared with larger vehicles) original cost, maintenance and operating costs.

SEND COUPON TODAY!

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How to put a million tiny hoes to work aerating.

Just apply GRAND PRIZE® Lawn & Garden Gypsum to grassy areas and shrub beds. GRAND PRIZE will work down—like a million tiny hoes—to create a loose, porous soil structure where air and water can move . . . roots can freely feed and grow.

It supplies soluble calcium and sulfur in a readily absorbed form. Won't affect the pH of the soil. Helps fertilizers to be more effective, and organic matter to decay faster. In addition, GRAND PRIZE helps neutralize pet and deicing salt damage.

GRAND PRIZE is inexpensive and easy to use. While excellent for lawns, use it for flowers, vegetables and shrubs. If you want richer, greener lawns with less work, write for more information to 101 S. Wacker Drive, Chicago, Ill. 60606. Dept. WTT-44.

CHEMICALS DIVISION
UNITED STATES GYPSUM
BUILDING AMERICA

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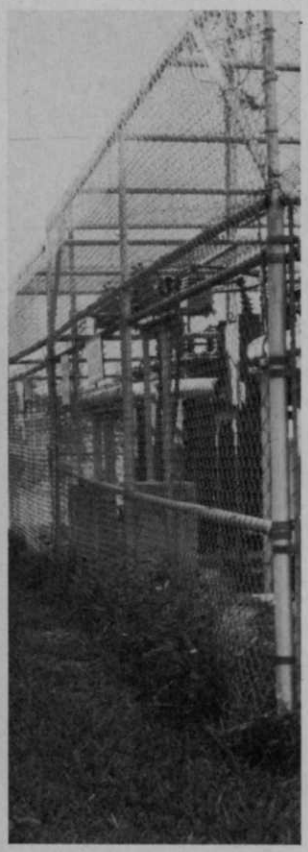


The Navy's Role In Weed Control

By D. R. ESTES
Special Assistant For Applied Biology
Southern Div. Facilities Engineering Command
Department of the Navy

One of the most frequent questions asked of me is, "Why does the Navy need an entomologist?" or, more specifically, Special Assistant for Applied Biology. I have found that the relationship is best explained by pointing out that the Navy shore stations, including reserve centers, directly support the fleet.

Being autonomous and military, with biology problems unique to the military and with security problems at most stations, requires experts who are thoroughly familiar with the military way to solve the problems, well versed in the entire field of applied biology, and able to communicate with the cognizant personnel.

The photos above and at left look like the scenes around an average city. All these areas need chemical weed control. Yet they are also typical of the needs of the Navy. All photos here are "OFFICIAL PHOTOGRAPH U.S. NAVY".

These shore stations range in size from one-building-on-an-acre reserve centers to large public works centers, air stations and ammunition depots. An example of the size involved in one of the larger activities is the following inventory: 44,967 acres (72 sq. miles); 2,206 buildings (9, 055,651 sq. ft. floor space); a 625 acre lake and 69 stocked ponds; 51.2 miles of electrical lines; 194 miles of standard gauge railroad; 404 miles of road system; 38.6 miles of boundary fence; 6.1 miles of sidewalk.

From this it can be seen that this is a good sized military "city," with all of the inherent problems of an autonomous locality.

It is my job to train and certify the on-board personnel conducting pest control operations and to advise them on pest control problems and programs in the 12 state jurisdiction. I work out of the southern division, Naval Facilities Engineer-

(continued on page 45)

FERTILIZE TREES IN ONE THIRD THE TIME AND ABOUT HALF THE COST USING JOBE'S TREE FOOD SPIKES.

Here's proof when fertilizing a 5" tree

Drilling Method[1]

Bulk 16-8-8 fertilizer—$90/ton
(Example price throughout U.S.)

2 lbs./inch of trunk diameter = 10 lbs. × 4.5¢/lb.	$ .45
½ hr. labor @ $4/hr.	2.00
Labor and materials	$2.45

$2.45 ÷ 5" tree = 49¢/inch of diameter
No allowance made for depreciation, amortization, breakage of auger, mistakes, etc.

[1]*Using electric auger.*

Jobe's Tree Food Spikes Method[2]

5 spikes 16-8-8 fertilizer—22¢/spike

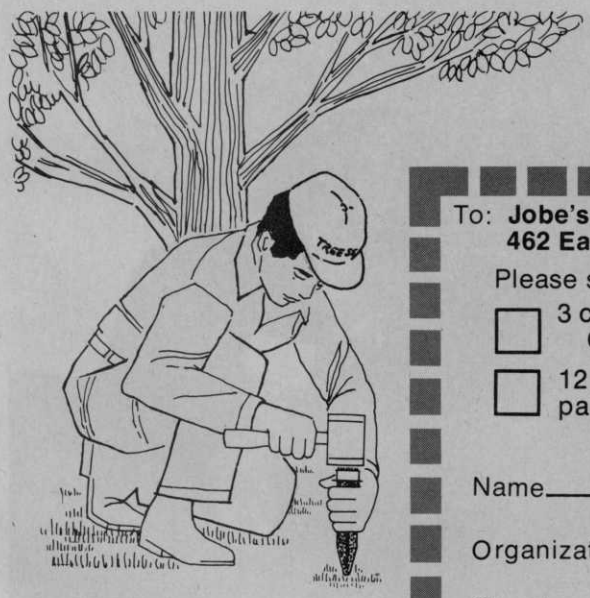
1 spike/inch of trunk diameter	$1.10
5 min. labor @ $4/hr.	.33
Labor and materials	$1.43

$1.43 ÷ 5" tree = 29¢/inch of diameter, based on 20 case order.

[2]*Based on results of university field tests and recommendations.*

Professional tree and turf men using Jobe's Tree Food Spikes save 50% and more in labor and materials. Save time and money by using Jobe's Tree Food Spikes. Order from your local supplier or use the coupon below.

Jobe's®
TREE FOOD SPIKES
The instant meal for hungry trees.



To: **Jobe's Tree Food Spikes** **TEL: 606/252-1721**
462 East High St., Lexington, Ky. 40508

Please send:

☐ 3 cases Tree Food Spikes @ $30 per case, freight prepaid. Continental U.S.A. (105 spikes—40 lbs. per case)

☐ 12 cases Tree Food Spikes @ $25 per case, freight prepaid.

Name_____
(Please print)

Organization_____

Street_____

City_____ State_____ Zip Code_____

For More Details Circle (136) on Reply Card

More than 300 attended this year's technical conference. Registration overflowed the headquarters hotel as well as four other local motels. Nineteen speakers discussed subjects from energy to drip irrigation.

This panel discussed the energy situation. They are: (1-r) David A. Witts, attorney, Dallas, Tex.; Charles A. Rothfus, exec. v-p, Colorado Petroleum council, Denver, Colo.; Dr. Clair J. Batty, mechanical engineering dept., Utah State Univ.; Dr. Ernst Smerdon, head, dept. of agriculture engineering, Univ. of Fla.; Dr. David Pimental, prof. of insect ecology, dept. of entomology, Cornell University.

Sprinkler Irrigation Association Report

THE energy situation and the irrigation industry shared the spotlight in February during the two day meeting of the Sprinkler Irrigation Technical Conference.

More than 320 members and guests met in Denver, the mile high city, to discuss head on the potential problems facing an industry dependent on energy to move water. Despite a few Aggie jokes and the usual razzmatazz of meeting old friends and acquaintances, it was a deadly serious meeting. This energy situation has started the wheels rolling in the creative minds of men. Concern about the present and more so about the future has fueled the inventive fires to develop conservation practices and/or new energy sources.

This was put in better perspective by Dr. David Pimental of Cornell University. Speaking on "food production and world energy supplies," the entomologist said that it "wasn't until man tapped the fossil energy did growth really take place." He reported that there are currently roughly 3.6 billion humans on Earth. "With the current rate of increase

(continued on page 34)

Executive director Wally Anderson, SIA, (1) chats informally during lunch with Dr. Falih K. Aljibury, irrigation specialist, San Joaquin Valley, Univ. of California, Parlier, Calif. Dr. Aljibury presented a paper on sprinkler irrigation.

Dr. Henry Indyk, extension specialist in turfgrass management, Rutgers University, discusses the use of irrigation in sod production. He drew much interest in this growing field. One of the newer innovations is using spray effluent on sod fields.

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One that could tip-toe in and out of scenic areas where an ordinary truck would have to bull its way. In other words, the Otis® Turf-Aul. It's compact, it's light, and its 4-wheel stability lets you travel the toughest terrain with sure-footed safety.

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More than $8 million in equipment, fertilizers, insecticides and other supplies were exhibited.

Table 1. Conference attendance continues high for the national turf conference staged by the GCSAA. Statistics for the past five years are:

	Anaheim Calif. (1974)	Boston, Mass. (1973)	Cincinnati, Ohio (1972)	Denver, Colorado (1971)	Houston, Texas (1970)
Members	1250	1198	1309	1076	1182
Ladies	848	487	455	564	592
Guests	431	473	226	234	189
Greens Chairmen	62	87	250	214	211
One Day Admission	586	735	609	333	419
Turf Students	147	122	219	142	52
Exhibitors	1762	1114	985	922	975
Total Registration	5086	4216	4053	3485	3620

GCSSA REPORT

(from page 22)

Glen View Golf Course in Evanston, Ill., presented an opposing view of poa and how he lived with it. Sering related a personal experiment at his Evanston club to test the water needs of the plant. He concluded that his members would rather play on a green, wet fairway than one that's dry and brown.

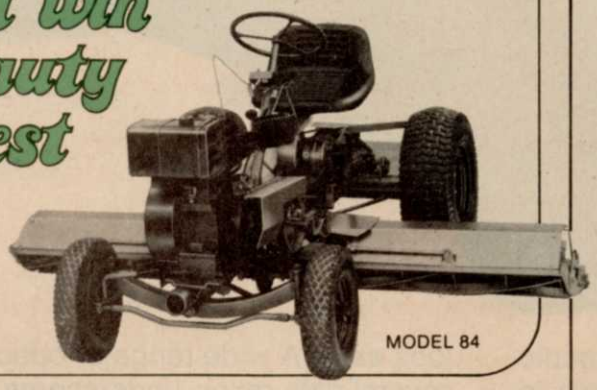
Dutch Elm disease (DED) controls were brought up to date by Dr. Eugene B. Smalley of the department of plant pathology at the University of Wisconsin. He pointed out that the big stumbling block to better control at this point has been available to the tree. He also discussed research work conducted at the university and other tests conducted by J. J. Mauget Co.

Previsual detection of plant disease or stress on leaf tissues by using infrared photography was discussed by two speakers at the conference. Dr. William Wildman, department of soils and plant nutrition at the University of California at Davis, and Gerald L. Faubel, superintendent of Saginaw Country Club, Saginaw, Mich., agreed on the unlimited uses of disease detection with infrared.

The organization's 46th International Turfgrass Conference and Show will be February 16-21, 1975 at the Rivergate, New Orleans, La.

making the chemical benomyl more

A workhorse won't win a beauty contest



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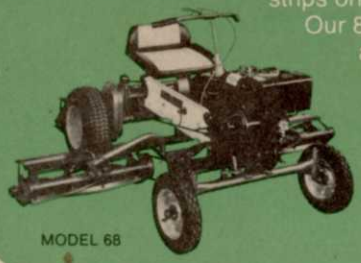
NATIONAL...our reputation is your guarantee of quality! Our start in 1919 makes us one of the (if not the) oldest power mower manufacturers in the U.S.A.

You won't find fancy shrouds, shiny hubcaps or chrome accent strips on a NATIONAL "workhorse." Our 84" and 68" Triplex Mowers are not designed for beauty ...*Just performance and durability!*



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Be glad that your aerial lift equipment is HI-RANGER! Even your oldest unit(s) have the quality and functional values that enable you to adequately service and maintain them; and your HI-RANGER Dealer, or the factory, to update, overhaul or rebuild them "better than new".

Now is the time to critically inspect your aerial lift equipment, or ask your HI-RANGER Dealer to inspect, and determine if your unit(s) will meet today's (and tomorrow's) most demanding requirements, and provide you with a written report on each unit. If your HI-RANGER(s) do need extensive (1) updating, (2) overhauling or (3) rebuilding, your problems will be minimal. Good equipment conservation mandates that you think about one or more of the three available services if any unit is three years or older, or has logged 6,000 or more hours of work.

ANSI If you would like specific helpful information about your HI-RANGER(s), advise us the Serial Number(s), and we'll promptly provide factory recommendations as to how best to assure your unit(s) optimum productive capability and safe functional condition; and to meet definitive regulatory requirements. We urge that you do this, especially in view of current conditions which demand exercise of unusual foresight.

OSHA We want your present HI-RANGER(s) to continue to serve you, because we know that HI-RANGERS, with proper care, are capable of unexcelled performance . . . better and longer . . . with optimum safety.

MAT With that thought in mind, your service-minded HI-RANGER Dealer, and the Factory Service Department are instituting expanded service capabilities and increasing shelf stocks of parts and kits to make your present and future HI-RANGER(s) continue to meet and exceed all regulatory standards, and to serve you beyond expectations with most productive capability and optimum safety . . . longer.

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(If more than one unit, attach additional listing.)

A practice green at the New Haven Country Club gets a workout. This green is bordered by a yard-wide strip of blacktop. Increased golfing pressure puts a premium on turf management.

James MacDonald, superintendent, surveys one of the greens and fairways on the 18 hole course. He uses Acti-dione weekly to control major turf diseases.

Rush Hour On The Golf Course

Families are golfing more.

This statement has all sorts of implications for psychologists, sociologists, and other "ists", but it's having a more direct impact on golf course superintendents. James MacDonald, superintendent at the New Haven Country Club, Hamden, Conn., has noted the increase in families golfing.

"During 1973 I noticed an increase in junior golfers," he says, "and the course is getting pressure seven days a week. The club membership is the same as it was in 1905 — 600, some of which are third and fourth generations of founding families, but all the family members are doing more golfing.

This increased golfing pressure puts a premium on turf management and organization of maintenance work. MacDonald utilizes his eight years of superintendent's knowhow, yet almost daily is learning new ways to get the job done.

As with most superintendents, he gives turf management top priority and blends fertilization, disease control, mowing and irrigation into an integrated program. Because he has a six-man migrant summer crew that returns every summer and two full-time men, labor hasn't been a problem for him.

"Thus far our labor situation has been good," he adds, "and we've been able to handle our seasonal tasks, which means the March to December time span. As expected, the tees have borne the brunt of most of the increase in traffic in recent years."

Tees on the 18-hole course consist of a mixture of Merion bluegrass, Poa *annua,* Manhattan rye and Fylking. Fairways have been overseeded with Fylking and Kentucky bluegrasses for the past four years.

New Haven Country Club greens consist of a mixture of Seaside, Poa *annua* and C1-C19 bentgrass, while the fairways contain Poa, Kentucky bluegrass, and some bentgrasses. The greens are built on soil brought from mushroom beds in New Jersey.

"My fertilization program isn't any different from anyone else's," MacDonald points out, "but we do topdress our own mix on the greens five times a year. With the spring and fall topdressing, we aerate the greens."

Herbicide treatments of Banvel D and 2,4-D are made every other year, with spot applications of MCPP used to control particular problems like clover. Disease control involves a combination of preventive and curative measures.

"Acti-dione has been a part of my disease control program since I've worked in turf management," MacDonald says. "I use it in a preventive program on the greens and haven't had any disease outbreaks in the five years I've been here."

He sprays Thiram, Cleary's 3336 and Acti-dione once a week on the greens from the middle of May into the month of October. When the spraying stops depends on the weather.

The fairway preventive treatments usually begin in April after the first mowing and go on twice a month through September. Until two years ago, he had just used a curative program on the fairways, but "diseases present in the spring must be controlled as they start to incubate,"

MacDonald emphasizes.

"Using Acti-dione through September and into October helps keep the turfgrass in shape for the winter season," he adds. "This fungicide does a tremendous job on leafspot and worked well on dollarspot in 1972."

His preventive programs go a long way toward this type of control because leafspot often goes unnoticed until most of the damage is done. With turf mixtures such as those at New Haven Country Club, the disease will likely attack only one type of grass and the rest will remain healthy.

This makes it easier for the disease to go undetected until severe thinning has occurred.

Leafspot most often occurs between April 1 and May 15 when temperatures are cool and the turf is moist. In MacDonald's area, the generally high humidity, along with an abundance of rainfall last year, provided good conditions for leafspot outbreaks.

Helminthosporium is present year-around, however, and can cause leafspot damage during cool, wet periods of summer and fall.

"During the application season, we spray every Friday," explains MacDonald. "This gives the greens more protection during a time when the heavy golfer traffic can bring on bruises and diseases. Even though our greens are three to four decades old, they're in good shape." □

Grass Seed Prices Up Farmer Interest Down

Several conditions, both artificial and natural, have compounded to more than triple the price of grass seed this year.

The upsurge of grass seed prices parallels the general grain trade situation of the past year. An export raid on U.S. grass seed, similar to the Russian wheat sales, has been quietly conducted by various foreign nations.

Added to the domestic shortage were unfavorable wet weather conditons in major Mid-west seed-producing areas, both during the 1972 grass seed harvest season and the 1973 planting season.

Despite an all-out effort for agricultural production by the USDA, experts are predicting little or no relief on either short-run or long-term basis.

Certified seed production has been largely dominated by veteran farmers. When farmers retire or otherwise go out of the business, young farmers are not attracted to seed growing, despite premium per-bushel prices. Some experts attribute this factor to the lack of desire by young farmers to take the special care required in growing, handling and storing high-quality seed.

Wisconsin Assembly Plant For Toro Announced

The Toro Company plans to start construction this summer of a 165,000-square-foot assembly plant in Tomah, Wis.

The plant will be located on 25 acres in Tomah Industrial Park, a 350-acre development created eight years ago to attract new industry and jointly owned by the city of Tomah and Forward Tomah Development Corporation. Tentative completion is scheduled for early summer of 1975. Initial work force will be about 50, but will build to between 300 and 350 employees, making Toro the largest employer in the industrial park.

Estimated the total cost of the new facility will be more than $3 million. Annual payroll of the plant, once it reaches full employment, will be over $2 million.

Reinco

A 4-TON-AN-HOUR "MINI-BRUTE": the new Reinco TM7-30 truck-mounted mulcher

IDEALLY SUITED FOR COMMERCIAL OR RESIDENTIAL TURF WORK.

The Reinco TM7—30 is a "lawn-a-minute" work horse that blows mulch a distance of up to 60 feet. Its unique straight-through drive eliminates power-robbing belts, chains, and gears. But most important of all, the TM7—30 cuts labor expenses as much as 5000% over hand shaking. Check out all the other advantages like low maintenance and versatility. You'll find the Reinco TM7—30 a real profit maker.

ONE MAN, ONE HYDROGRASSER perfectly suited for establishing grass on home lawns and other small areas.

One man can easily fertilize, seed, and mulch up to 6 good size lawns a day with the PP500. Only one moving part insures low maintenance. Simple to operate. Add mulch, seed, fertilizer plus a soil binder such as Terra Tack to the circulating water to form a homogenous slurry. . . then spray . . .that's all there is to it. Spray on all the ingredients necessary for good turf—all in one easy operation. Check out the time. . .you'll be surprised. **For further information write to:**

Reinco

P. O. Box 584, Plainfield, N. J. 07061 (201) 755-0921

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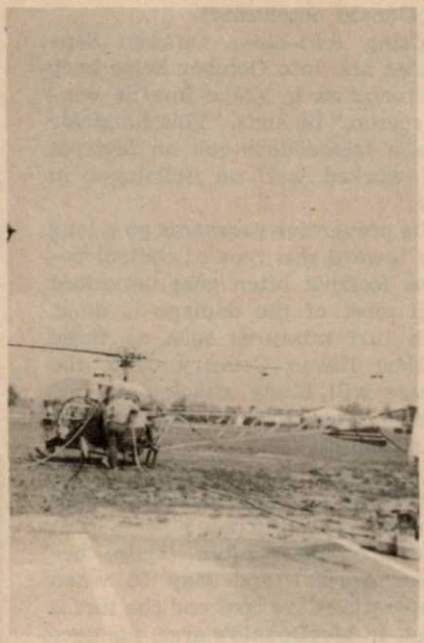
Green Industry Newsmakers

Hi Doll! A four-foot tall stuffed elf is strapped into a seat aboard a flight from Kansas City, Mo. to Los Angeles by Continental Airlines' stewardess Izetta Franzen as Gary Kisner, one of its creators, sits in the next seat. The elf was created to symbolize Cushman/Ryan turf care products and was exhibited at the 45th International Turfgrass Conference and Show in Anaheim, Calif.



A chopper in Elm Grove, Wis.? It seems a huge invasion of leaf-eating cankerworms would hatch as the city's tree buds broke and leaves expended. So, a city-wide spraying program with Bacillus thuringiensis (Thuricide) was initiated in the Spring of 1973 to control this serious pest. The aerial spraying techniques proved successful.

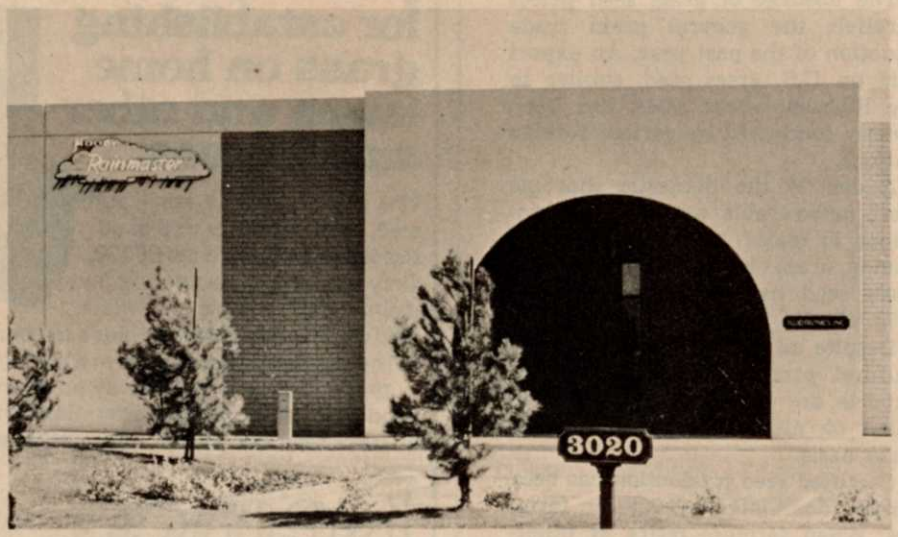
Caddo Lake, one of the nation's most picturesque bodies of water, was in danger of being overtaken by noxious vegetation until rescue efforts were made through the use of chemical weed control, according to L. V. Guerra of the Texas Parks and Wildlife Department.

Guerra, reporting to some 1,000 people at the Weed Science Society of America in late February, said Caddo had become almost impassable for boat traffic.

The department has reopened most of the lake using 50,000 lbs. of a granular formulation of 2,4-D (Aqua Kleen).

The lake, straddling the Texas-Louisiana border, was the scene of several Walt Disney productions.

William Flemmer, III, president of Princeton Nurseries, is shown absorbed in his topic, "Nature's Guide to Successful Gardening and Landscaping". He commented on a slide presentation to the some 300 landscape contractors at the Two-Day Short Course, sponsored by ALCM and the Cooperative Extension Service at Mendon, Mass.



Moody Sprinkler Co., Inc. has moved to Calif. The company's new plant is located in the Costa Mesa area. The greatly expanded manufacturing facilities are geared to step up production of their Rainmaster and Customline models.

"I Stake My Reputation on Agrico Products. So Can You."

Donald Pfleiderer, Ph.D., Ohio State University, is head of Agrico Country Club's Professional Division. He is among the country's foremost agronomists and is author of the ***Agronomic Bulletin.***

"I stake my reputation on the dependability of Agrico Country Club Fertilizer—and so can you. Because at Agrico we've proven our products work more efficiently. Here's how.

"Before any new Agrico product is introduced, it must go through extensive research and testing. It is tested on field plots under varying conditions. It is tested through plant analysis and researched under controlled conditions in green houses.

"In its final form, nothing is sacrificed. Every element and process necessary for turf growth is utilized, enabling Agrico Country Club to give you more feeding power for your money. Let's take a closer look at some of Agrico's power-feeding products."

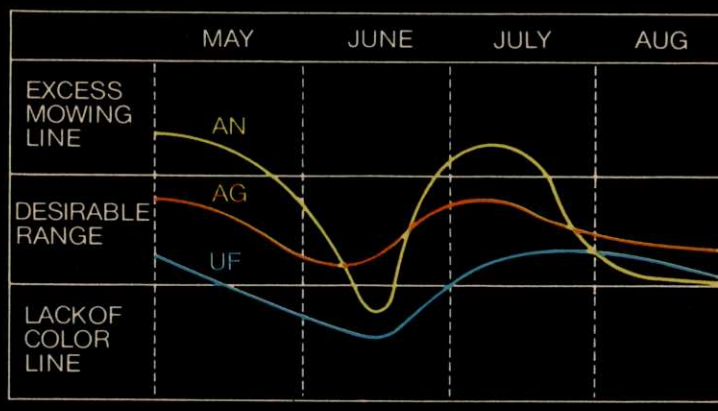
AGRICO PROFESSIONAL FERTILIZERS

	Advantages	Sizing	WIN	Organic	Sulfate of Potash	Mg	S	Fe	Mn
18-4-10	Special greens fertilizer. Small granules get to roots quickly; can't be picked up by mowers.	G	10%	65%	100%	1%	8%	1%	.50%
18-5-9	Ideal for fairways; promotes uniformly thicker turf.	F	5.5%	50%	33.33%	1%	8%	1%	.50%
20-0-10	"0" phosphorus for use where high "P" levels exist or where arsenate is used.	F	6.8%	50%	33.33%	—	4%	1%	—
8-4-24	Designed for low potash soils or where only nitrogen is used.	F	1.4%	30%	25%	—	4%	1%	—
12-4-8	Ideal on fairways, tees, and greens where phosphorus is high.	F	3.6%	50%	—	.50%	4%	1%	—
16-8-8	General purpose; ideal to use in seed beds.	F	—	—	—	—	—	—	—

"Above is an overview of six of Agrico's full-line of professional products. The top of our line products have more WIN, higher organic content, more sulphate, magnesium, sulphur, iron and manganese. Sizing is either small for greens or regular which we call fairway sizing. These and all other Agrico products contain the applicable balance of WIN and water soluble nitrogen to allow immediate green-up and provide long-term greening—with a minimum number of applications. Based on your specific course requirements, two or more of these products will work efficiently to complete your fertilizer needs."

Agrico®
Country Club
A Good Name To Grow By

"Shown below is one of the reasons Agrico Country Club products will work best for you. AN is all mineral nitrogen—ammonium nitrate. As you'll notice AN effects excessive mowing UF is urea form nitrogen which does not produce the needed color. AG is Agrico Country Club 18-4-10. Like all Agrico professional fertilizers, 18-4-10 produces the needed color without effecting excessive mowing with a minimum number of applications."



"We'll go to any links"

"To help you decide which of the full-line of dependable Agrico products are best for your course, we'll go to any links. Complete the attached coupon and we'll fill you in on all of Agrico's course-care products. We'll also provide a free soil analysis of your course and send you quarterly mailings of my *Agronomic Bulletin* to keep you updated on new product information."

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P.O. Box 317
Lebanon, Pennsylvania 17042

_____ Please contact me for a FREE soil analysis.

_____ Please send me information on all of Agrico's products.

_____ Please send me regular mailings of Dr. Pfleiderer's AGRONOMIC BULLETIN.

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Title _____ Golf Course _____

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Phone Number _____

City _____ State _____ Zip _____

Offer good only in Agrico trade areas.

Greensweep. The little greens sweeper that works as well on pavement as it does on turf.

Tow the Greensweep behind the Ryan Minute-Miser or your turf tractor. It's light. Handles easily. And you won't find it leaving tire tracks on your turf.

There's a strong 3½ horse Tecumseh engine mounted on the Greensweep chassis. It powers an eight-sided fiber brush that picks up debris with a gentle swooosh.

We've run the Greensweep over leaves, thatch, aerating cores, pine needles, dirt, sand, gravel, broken glass paper, and beer cans, and it thrives on them.

Sweeps a 48 inch wide swath. So clean-up is not only easy, it's fast.

Greensweep. The lightweight power sweeper that's as good on a driveway as on a golf course.

Ryan Turf Equipment, OMC-LINCOLN, a Division of Outboard Marine Corporation, P.O. Box 82409, 2156 Cushman Drive, Lincoln NB 68501

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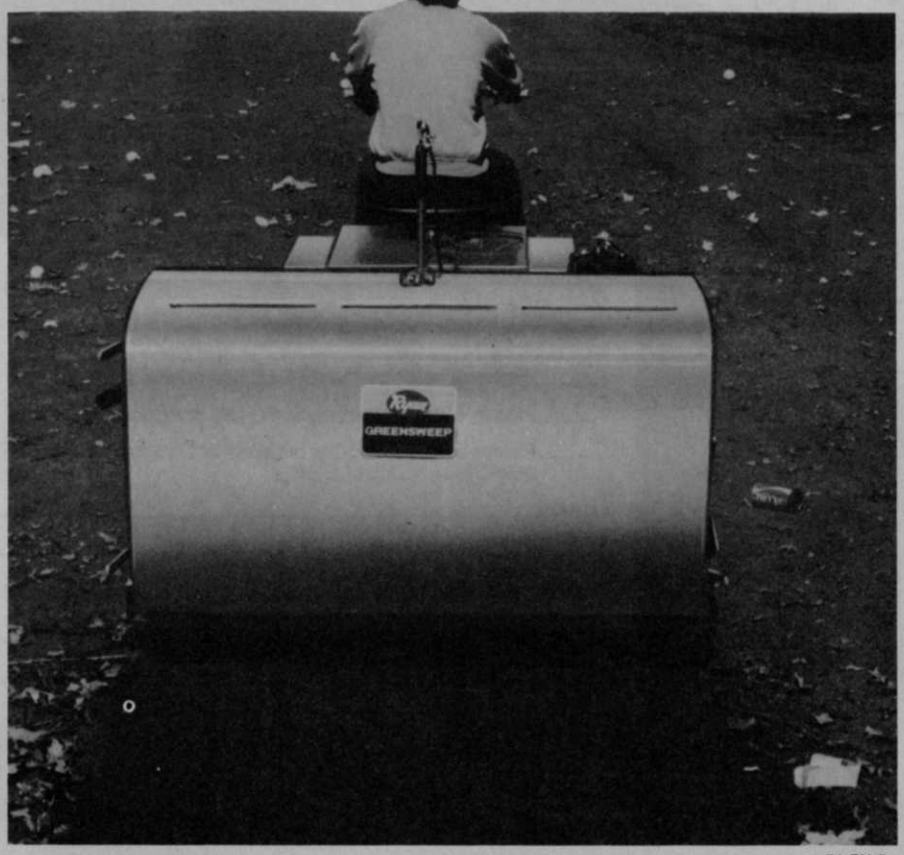
Greensweep. The clean-up machine.



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SPRINKLER IRRIGATION

(from page 26)

and with our known biological controls, it is inevitable that the population will reach seven billion by 2000."

In 1850, we started to use fossil fuels, he continued. Ninety-two percent of our fuel came from wood back then. Now 96 percent comes from fossil fuels. He said that America consumes 34 percent of the total world energy and 35 percent of the world's petroleum. He charged that our use of energy has increased while the efficiency of energy inputs has decreased.

Pimental cited an example of corn production to prove his point. He also said it takes 940,800 K cal (a unit of energy) to produce nitrogen today. In 1945, it required 925,500 K cal to produce the same amount of nitrogen.

One thing further. Dr. Pimental claimed that food production is "cheap only because we have a high Gross National Product (GPN). Only 17 percent of our income goes for food (1970). "We don't have the most efficient production of food, he charged. It costs us about $40 to produce 1000 kilocalories versus $10 for the Indian to produce 1000 kilocalories. Twenty percent of the labor force in the U.S. is involved in supplying the farmer.

He concluded his comments by saying that he has two hopes for the future, 1. mankind has the wisdom to stop reproducing and 2. the development of alternative energy resources.

Riding on this wave of energy, Dr. Ernest Smerdon, University of Florida, brought the energy situation even closer to home. "The era of cheap and plentiful fuels is coming to an end," he said. "We can't continue to use energy like we have in the past."

The agricultural engineer pointed out that irrigation is an extremely high user of energy. Most all irrigation is not gravity flow. He said that every irrigation design in the future (regardless of location or use) must be examined for efficiency of design in developing the system.

Although most of his remarks were directed to irrigation as it applies to agriculture, it is interesting to note that efficiency of design in the development of an irrigation system fits the turfgrass industry too. One can't help but reflect on the number of golf courses with poorly designed irrigation systems because there

(continued on page 42)

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For More Details On Preceding Page Circle (155) On Reply Card

"Is your superintendent getting the course ready for a spring tournament?"

"No, Jim always keeps it looking this good."

How does he do it? He starts with the Du Pont TERSAN® 1-2-3 Disease Control Program and stays with it.

The first step is the application of TERSAN LSR turf fungicide on tees, fairways and greens in early spring. TERSAN LSR stops Leaf Spot problems caused by overwintering spores of Helminthosporium spp. before the melting or fading-out stage. It also protects against Rust and Large Brown Patch before they have a chance to damage your turf.

This first step, along with your other sound turf management practices, can put your spring playing surface into shape that's fit for a tournament. And the second and third steps of the TERSAN 1-2-3 Program will help keep your turf that way because this program controls all major turf diseases on all common turf grasses all season long.

The TERSAN 1-2-3 Program offers disease control that's complete, effective and economical. Disease control that surprises new members, keeps old ones satisfied—and lets the superintendent be more appreciated.

For complete details and a supply of TERSAN turf fungicides, contact your golf course supplier.

With any chemical, follow labeling instructions and warnings carefully.

DU PONT

TERSAN 1·2·3 DISEASE CONTROL PROGRAM

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Target: Railroad Weeds

EDITOR'S NOTE: There appears to be a growing interest in railroads, and it isn't necessarily just among the locomotive buffs. Weed control firms are showing greater awareness of this market, despite the fact that it is highly specialized both in equipment and expertise. Any one of a number of factors may be responsible. The fact remains that railroad weed control has come into the spotlight. The following article is presented to shed more information into this aspect of the Green Industry.

By RICHARD W. FIELDS
Industrial Veg. Control Manager
Velsicol Chemical Corporation

GETTING your foot in the door is perhaps the main hurdle for contract vegetation control along railroads. You have to know the right people. Vegetation control along railroads is also complicated, demanding specialized sales and equipment.

Here are some of the basics involved:

The herbicide programs are controlled at railroad headquarters, with program development and implementation from the district level. Chemicals are purchased and contracts with applicators are on a yearly bid basis.

The track is sprayed with bareground and weed control chemicals on a swath sometimes 8 feet wide, but usually 20 to 24 feet wide. Usually, a combination of bareground and weed control chemicals is sprayed 8 feet across. Beyond that, the weed control chemical alone is used for "chemical weed mowing."

Enough chemical is used to control most species, especially noxious weeds, and to take down the high weeds alongside the track. Without chemical weed mowing, the view is obstructed and men don't have room to work around the track. Without the bareground material on the track bed, vegetation interferes with equipment, there is risk of fire, and water does not drain off ballast rapidly.

Brush control alongside the tracks is another operation, separate from chemical weed mowing. The greatest need is for removing brush interfering with communication and signal lines. Other needs are for greater visibility at grade crossings and curves, safety for personnel perside track sections and elimination of the potential for great forests developing alongside track sections.

The total market for weed and brush control along railroads is quite large. Railroad rights-of-way encompass something like 3 million acres in the U.S. But budgets allowed for vegetation control are limited, and so in any given year, only about 20 percent of the total acreage is treated.

Application used to be only by spray trains which apply 300 gallons of solution per acre on up. Now, on-off track vehicles (called Hy-rail) trucks, which can be driven on both highways and rails, are replacing the older spray equipment. The on-off track vehicles are low-volume application, somewhere in the neighborhood of 25 to 30 gallons per acre, and are more economical, efficient and result in fewer claim damages.

Drift control is very important for railroads, with methods including Amchem's Directa-spray and Velsicol's Accutrol spray system. With the Accutrol system, large droplets of air emulsion and the solution tends to stick together. But this system, along with most of the others, should be considered as a means to decrease the hazards of normal applications, not a means to apply herbicides in

Chemical weed mowing is not designed to completely eliminate the weeds, but to knock them down and suppress them. Wild rose control with Banvel along the ballast eliminates equipment interference, lessens fire hazards and allows water to drain off rapidly.

any wind conditions.

For example, we treat the Accutrol spray system as we would conventional water systems. When the wind is over 10 mph, we want it shut off. What we're saying is in winds up to 10 mph, Accutrol does a much safer job.

Usually, 2,4-D or 2,4,5-T is used in combination with MSMA for chemical weed mowing, although the newer trend is to combine the D's and T's with a herbicide such as Banvel, which gives season-long control of perennial weeds such as bindweed, Russian thistle, kochia, and Canadian thistle.

Chemical weed mowing is not designed to completely eliminate the weeds, but to knock them down and suppress them. It would be easy enough to completely control the weeds by using, let's say, 3 gallons of Banvel 720 per acre, but because of budget limitations, only ½ gallon is applied per acre. There is no point in total perennial weed control anyway because you still have to turn around and spray the next year for the annual weeds.

Brush control is one area that gives railroad vegetation control managers a lot of trouble because it tends to be disorganized.

Too often, spraying for brush is a hit or miss affair. Typically, railroads spend several hundred thousand dollars on brush control on the basis of hearsay or "I think so," without knowing really what their problems are, how much brush they have, or what chemicals to put where.

Spraying brush is too costly and time consuming for it not to be done well. Developing a plan is hard work. While it may sound difficult to plan ahead of time the monumental task of controlling brush along thousands of miles of track, a railroad will be money ahead by spending it where it is needed the most.

The objectives of both the railroad and the contractor need to be written down. Management needs facts. Objectives could be species of brush to be killed; percentage of root kill expected; how long a single treatment should last, and how many years between treatments.

Perhaps we can put it in terms of the three "E's"—Examining, Execution, and Evaluation.

EXAMINATION

The contractor and railroad can cooperate in the evaluation phase. For one railroad, recently a list of brush treatment areas were given

(continued on page 48)

Spray trains effectively cover greater distances than off-track vehicles with application rates as high as 300 gallons of solution per acre.

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product, then that product tends to stay put. E-Z Go.

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Clutching scholarship checks awarded to them at the Midwest Regional Turf Conference's annual banquet are: (from left) Randal Bellinger, Reynolds, Ill., Alan Nees, Chesterton, In. and Kenneth R. Griepentrog, Tulsa, Okla. Griepentrog, a senior, received a Golf Course Superintendents Association scholarship worth $500. Bellinger, a sophomore, and Nees, a senior, received scholarships valued at $200 and $100 respectively.

Midwest Regional Turf Conference Report

If experience is the best teacher, then some 600 persons attending the Midwest Regional Turf Conference at Purdue University in late February should have learned plenty.

Capitalizing on the personal experiences and problems of some of the top turf specialists, agronomists and sales personnel in the mid-continent, the meeting represented possibly the most educational turf conference in the U.S.

It was a joint effort by the Midwest Turf Foundation and the Purdue Agronomy Department that put the conference in gear but the impressive line-up of speakers really put the conference in motion.

By placing major emphasis on personal experiences, enough atmosphere of credibility was generated on Monday afternoon to hold the interest of all attending until Wednesday noon. The real action began Tuesday morning when the sessions started three deep; enough to make this attender wish he could be in more places than one.

At the kick-off session on Monday, senior attendee Harold Glissman reminisced through the scores of conferences he has attended and the many lasting friends he made along the way. Included in Glissman's trip down memory lane was an inkling of the art philosophy and motivations of attending conferences.

Tuesday morning's section on general turf proved to be a combination of research, sales, management and the first job experience. Dr. R. P. Freeborg of Purdue quickly reviewed some reseeding and Roundup herbicide experiments. Tom Douglas, Caterpillar Tractor Co., presented the advantages and disadvantages of supervising an industrial lawn and his methods of approaching the varying problems of unions, winter salt damage and personnel turnover.

Lee Record, midwest director, USGA, led off one of Tuesday afternoon's sections with the current specifications for putting greens. He reported USGA greens can be constructed for about $1.20 per square foot. Conforming to the construction theme, Steve Gipson, TRW, Inc., told how he was involved in the

From left, W. H. Daniel, Purdue turf specialist, executive secretary (re-elected); John Spodnik, superintendent, Westfield Country Club, Westfield Center, O., vice president and O. Lee Redman, superintendent, Bellerive Country Club, St. Louis, Mo., president. The 1974-75 officers were elected at the organization's annual conference at Purdue University.

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trials and tribulations of developing a new golf course and the many factors to be considered when building a course. Gipson pointed out that the most important item necessary to efficient construction is a dedicated and experienced working crew. Mike McMullen, Eastern Rainbird Sales Corp., traced the developing trends in golf course irrigation from the sod cup to the two-wire automatic irrigation system.

The conference consisted of nine, one-half day sessions, each presenting a major theme. One entire session was devoted to Dr. W. H. Daniel's and Purdue's exclusive development, the Purr-Wick system (Plastic Under Sand Reservoir Root-Zone). The system uses the principle of capillary (wick) action to water grass. Plastic is used at the base to contain moisture. This section included eight testimonials from turf specialists and a golf course superintendent on the success of the system in applications ranging from golf course greens to flower beds.

Paul Morgan, superintendent of Brown's Run Country Club, Middleton, O., shared his fairway problems with the conference delegates Wednesday morning. He pointed out the values of proper seed selection and fertilizer application for growing and maintaining desirable fairways. Len Hazlett, Jr., superintendent of the Country Club, Inc., Cleveland, O., described his procedure for ridding his course of most of its poa annua.

The annual banquet highlighted Tuesday evening and featured the rousing harmonies of the Purdue Glee Club. Four Purdue turf students received scholarships totaling $1,300 at the affair. Recipients of the Golf Course Superintendents Association of America scholarships worth $500 each were Kenneth R. Griepentrog and Douglas J. Meadows. Randal Bellinger received $200 and Alan Nees was presented $100.

Elected 1974-75 officers of the Midwest Regional Turf Foundation were O. Lee Redman, superintendent, Bellerive Country Club, St. Louis, president; John Spodnik, superintendent, Westfield Country Club, Westfield Center, O., vice president, and W. H. Daniel, Purdue turf specialist, executive secretary (re-elected).

New directors are John C. West, Little Turtle Country Club, Columbus, O.; Danny K. Quast, Milwaukee Country Club, Milwaukee, Wis.; Harry Murray, Century Toro, Cincinnati, O., and Robert L. (Pete) Cahill, Summit Hills Golf Course, S. Ft. Mitchell, Ky. □

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Saturn 7	7′ General Duty	Pull/Lift	Yes	No
Gyro 72	6′ Heavy Duty	Pull/Lift	Yes	Yes
Cyclone 72	6′ Heavy Duty	Pull/Lift	Yes	Yes
Saturn 6	6′ General Duty	Pull/Lift	Yes	No
Gyro 60	5′ Heavy Duty	Pull/Lift	Yes	Yes
Cyclone 60	5′ Heavy Duty	Pull/Lift	Yes	Yes
Saturn 5	5′ General Duty	Lift Only	Yes	No

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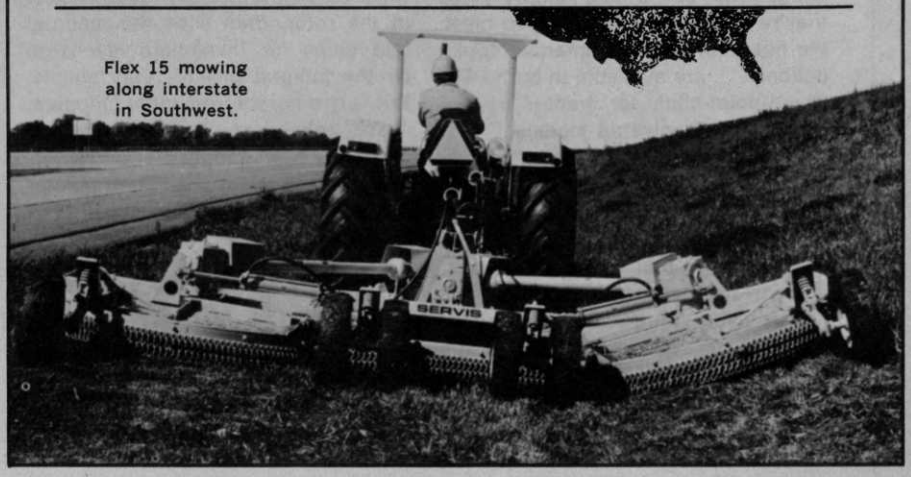

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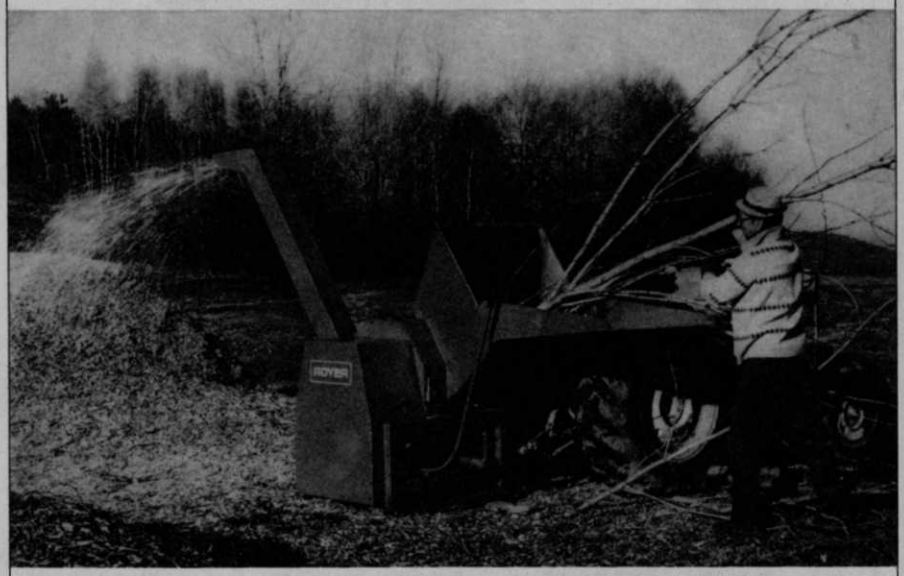

PTO three-point-hitch model 2600

...thanks to a new design concept

Royer's new "2600" Series Chippers are designed to be a lot easier on your budget and your ears. They provide an exceptionally fast, low-cost way to convert brush, branches, trimmings and stalks into chips. And, they're specifically designed to meet the needs of small commercial applications . . . are available in both PTO (three-point-hitch for tractor operation) and self-powered models.

The new chippers feature a design that combines a *rotating anvil** with a heavy-duty chipping rotor that also serves as a blower and flywheel. A unique design that delivers high-output, low-maintenance operation. And quieter operation, too. With a lot less "chipper scream" — because of an operating principle that cuts way down on rotor rpm's without cutting down on output.

Here's how it works: As material is placed in the deep-throated hopper, the rotating anvil self-feeds the material to a high-speed chipping rotor. Steel blades, projecting through slots in the rotor, then slice the material into chips for immediate discharge by the integral blower. Very simple. But very different from other chippers.

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**Patent pending*

SPRINKLER IRRIGATION

(from page 34)

were only so many dollars allocated.

Dr. Smerdon did include in his remarks on energy conservation practices the idea that alternative energy sources were being investigated. He referred specifically to nuclear fission, fusion, and solar energy as possibilities.

There are three barriers which we must overcome, reported Charles A. Rothfus, executive vice president, Colorado Petroleum Council. First we must accept the fact that there is a shortage of energy. Second, we need enlightened leadership. Third, we have long cherished the role of being bigger and better than those other people in the world. This role is now changing.

Rothfus lead the audience into a clearer meaning of what is meant by the energy crisis. "We are not out of oil," he said. New oil is being found daily. "Second, we have an energy crisis not because what happened, but because what didn't happen." The Alaskan pipeline was delayed. Leases for oil exploration on the continental shelf were tabled. New refineries were not built. Uses of coal were not developed due to environmentalist pressure. Nuclear plants were not constructed because of environmentalists.

He said that in the short range we must continue to rely on gas and oil heavily. This includes completing the Alaskan pipeline, drilling on the continental shelf, attracting capital, developing increased refining capacity, and building deep water ports for foreign oil.

What about the long range? Rothfus had answers for this too. He said we must rely on coal, nuclear power, solar energy, geothermal energy and breeder reactor energy. He pointed out that there is a three to five year lag between the initial "go" signal and the "on stream" status. "The barrier between new supply and where we are is a people barrier," he said.

Other discussions on the energy situation were given by Dr. Clair Batty, Utah State University, and David A. Witts, a Dallas, Texas attorney.

One of the interesting discussions in the afternoon lineup was a speech by James W. Ball, research associate, Colorado State University. Mr. Ball, who is twice retired and now actively working on his third career, discussed, "Problems Encountered with Entrapped Air."

Through a series of slides and

(continued on page 46)

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THE ENERGY CRISIS

(from page 16)

be changes in working hours to fit car pools, bus or train schedules. This could have an impact on the number of hours as well as the time of day, or night, that customers will use a given turf facility," he reasoned.

There will be greater emphasis on total cost of equipment operation. This will take into account not just the initial cost, but the cost of parts and service, down time, labor and other operating costs. In short, the emphasis will be on all factors determining the cost of work performed by a given piece of equipment.

In the near term, the environmental emphasis may become secondary to efforts to develop and utilize fuels more efficiently.

He said the shorter work week is already a reality in some industries, and is likely to spread to others. There may be rearrangement of working hours. All of which will lead to more leisure and greater utilization of facilities closer to home.

Dr. Watson called on the turf industry to move toward an understanding and utilization of the metric system. "We are one of the few nations who have not adopted this simple system. We cannot stand alone and expect to compete internationally, nor can we survive as isolationists, although we may desire to do so."

The need for improvement of managerial talent will become more critical as the need for control and analysis of all operational procedures increases.

"All that has happened in the past few months and all that will happen in the upcoming months can mean nothing but increased opportunity for all concerned with the turfgrass industry. The production and maintenance of good turf facilities is a vital and necessary part of our way of life," Dr. Watson concluded. □

Japanese Beetle Quarantine Extended In Six States

The U.S. Department of Agriculture (USDA) is enforcing Japanese beetle quarantine restrictions on the movement of certain agricultural items in seven new counties in four states.

Leo G. K. Iverson, deputy administrator of USDA's Animal and Plant Health Inspection Service (APHIS), said the action was taken after the discovery of Japanese beetles in Vermillion county, Ind.; Auglaize county, O.; Chesterfield and Horry counties, South Carolina; and Campbell, Knox, and McMinn counties in Tenn.

Meanwhile, quarantine restrictions are being extended to additional areas recently found infested within the following counties, which are already being regulated: Cobb, DeKalb, Elbert, Fayette, Fulton, and Henry in Ga.; Coles and Iroquois in Ill.; Clay, Clark, Montgomery and Greene, O., Parke, Putnam, and Sullivan in Ind.; Darlington in S. C.; and Greene, Monroe, Polk, and Washington in Tenn.

Quarantine regulations restrict the shipment, from infested to uninfested areas, of articles that might carry "hitchhiking" Japanese beetles. Such articles as plants with roots, grass sod, bulbs, etc., may be moved only after being inspected, treated (if necessary), and certified "pest free" by an APHIS or cooperating state agricultural inspector.

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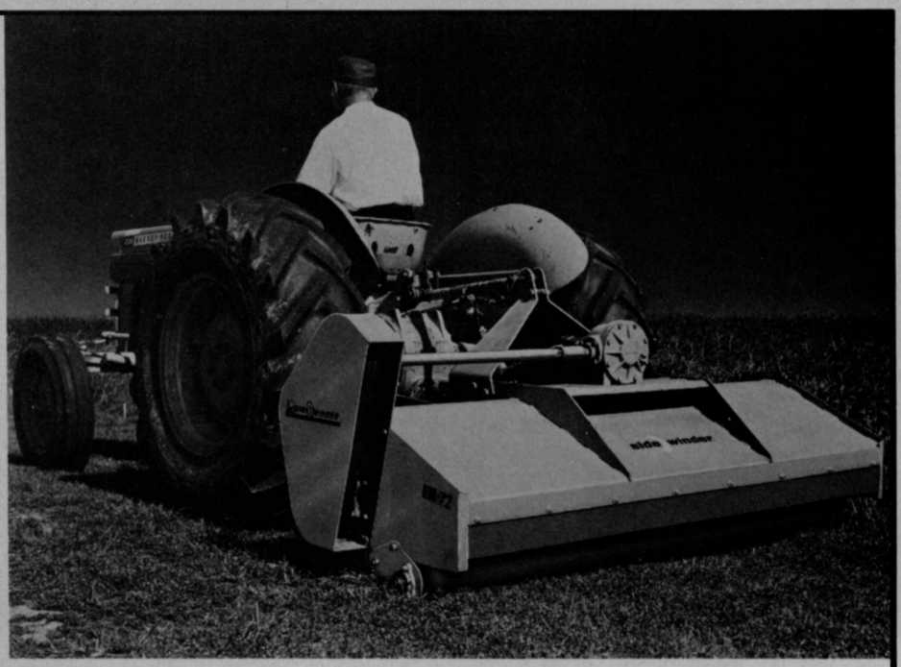

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THE NAVY'S ROLE IN WEED CONTROL

(from page 24)

ing Command, Charleston, South Carolina, known as an engineering field division (EFD). We accomplish the planning, design and construction of public works and public utilities. We also direct and administer the maintenance and/or operation of family housing facilities, utilities, and transportation.

When I wear my weed control hat, I provide professional consulting service on the control of undesirable vegetation on improved or semi-improved land, usually involving herbiciding, and chemical or mechanical control in unimproved areas. Our office or Applied Biology has the responsibility for herbicide application, including approval of requisitions for herbicides and application equipment, and the preparation of technical portions of contract specifications. This includes the consultation and liaison on problems involving pesticide toxicity, handling or storage of materials, and the guidance of related station application operations for maximum efficiency, economy and safety in applying herbicides.

To cite an example of the need for my review and approval of herbicide requisitions, one station submitted a requisition for 10,000 gallons of a material containing less than 2% active ingredient, the rest being petroleum oil, and costing $47,500. Not only would the material not have accomplished the desired results, but the petroleum oil would have produced the environmental pollution and fire hazard they were trying to avoid. Furthermore they had no hydraulic equipment to apply it. The recommendation had been made by persons not trained in weed control, and neither our advice nor that of their own well-trained and certified pest control crew had been sought before submitting the requisition. We came back with a recommendation for a much more effective and safer material, effecting a many thousands of dollars savings, and for which they had the proper application equipment on hand.

Our second line of defense is the Department of Defense requirement that all pest control work be reported each month to us for review and submission to the Armed Forces Pest Control Board.

The man with the hoe and brushhook is gradually being replaced in Navy weed control by the man who is qualified to apply herbicides. With chemical control, personnel can select a material which will prolong results, thus reducing their labor costs.

Each year more maintenance supervisors are being made aware of the substantial improvement potential in weed control by chemical means and fund it in their annual budget. During a recent fiscal year, we approved 2,570 gallons and 527,128 pounds of herbicide concentrates for application in the Sixth and Eighth Naval Districts, but through our insistence on trained, certified persons to use and apply these materials judiciously, we can be justifiably proud of the Navy pesticide safety record.

Here are some of the ways the Navy is involved in weed control:

1. To prevent damage to asphalt pavements. As with any municipality, we have many parking lots, tennis courts and sidewalks that are expensive to maintain unless a bare ground material is incorporated in the base course. In addition, we have such unique features as drill fields and airfield runways that require similar treatment. We select the most appropriate herbicide for the particular job from among the many products on the market.

2. To eliminate the fire hazards. Areas we keep free of this hazard include: ammunition, lumber and fuel storage areas, around power poles and communication lines, and under wooden bleachers in noncultivated areas. In this regard, we are not very different from similar situations in industrial areas in the civilian community.

3. To improve visibility. This is of vital importance around airfield guidelights, as well as utility lines and antennas. Our annual on-site reviews are stressing this important application to airfield commanding officers.

4. To reduce mosquito breeding areas in drainage ditches, sewage oxidation ponds and lakes. There have been considerable man-hour savings in mosquito fogging and spraying operations through good aquatic weed control programs, with the additional benefit of opening up such areas for recreation.

5. To improve turf for appearance and durability. With the increasing emphasis on recreation and land use, the Navy is right up in the forefront in maintenance of lawns, golf courses and athletic fields. Our land-based sailors are being provided more recreational facilities on base, and the family housing areas are receiving more emphasis on landscaping. With some of our stations supporting more than 1,500 family housing units, we have had to go contract for some kinds of pest control. The occupants have certain responsibilities in this area, but we discourage their use of any but the lowest percentage pesticides.

6. To maintain the health and welfare of personnel. Weeds that cause allergies or dermatitis must be controlled. In the far western part of our area, we are concerned with the control of scrub vegetation around the perimeter of stations that may harbor such pests as rattlesnakes, scorpions and tarantulas.

7. To conserve underground water in dry riverbeds by mechanical means. Again in the far west, we have what is known as phreatophytes, or "pump" plants, which take more water from the ground than they need. Through the process of transpiration, plants such as salt cedar, willow, sycamore, tules, bermudagrass and alfalfa appreciably lower the water table.

At a large Marine desert camp, where water supply is critical, units involved in the training effort of operating bulldozers clear enough plants and trees from the creeks and river beds to effect an annual ground water savings of 652,000 gallons (2 acre-feet) for each acre cleared. Recent tests using selective herbicides have shown promise in the control of phreatophytes in dry river beds.

8. To reduce the number of man-hours in trimming grass around sprinkler heads, fireplugs, and other mowing obstructions, and chemically edging lawns. At four Naval activities on the West Coast, approximately $12,500 per year are saved in labor alone by chemically treating around 15,700 sprinkler heads on an average of four times a year. Plant growth inhibiters are now being tried experimentally at some activities. If these show promise, station personnel can further reduce maintenance costs of lawns.

From the foregoing, I think it can be seen that we in the Navy are not too much different from our civilian community counterparts in the complexity of our weed control problems and in our solutions. Perhaps the big difference is our "fish-bowl" image and our sincere desire to save the taxpayer dollars through a minimum of manpower effort with a maximum of results. □

Much of the discussion centered around energy. Interest was expressed in using plant material — possibly even water hyacinths — as energy sources. Dr. Indyk (c) talks about the sod market with an SIA delegate. At right is William A. Closter, Kynbrook, N. Y.

SPRINKLER IRRIGATION

(from page 42)

charts he ably demonstrated the explosive power of water and air. Most SIA members realized that air in a line has detrimental effects. But Ball showed conclusively that entrapped air has the ability to rupture steel pipe and crumble two foot thick concrete.

His advice: 1. Make good installations, guard against flotation; 2. Fill pipes and tubing slowly; 3. Release air slowly; 4. Use air release valves that close slowly; 5. Design pipe to withstand high pressures—if all else fails.

Donald A. Clemans, superintendent, Olive Glenn Golf Club, Cody, Wyo. headed the speaker's list on the second day of the conference. His topic, "Water — Good or Bad" drew a good deal of interest in light of the energy situation as reported the previous day.

Here are some of the points he made: Water expands when cooled. It creates erosion problems. An excess of water helps make organic matter (peat bogs). Drainage and air movement in soil is more important than water during periods of drought.

Clemans said that he has observed that in turfgrass care during the past 50 years a number of changes have taken place. We've shortened the height of cut. We've started irrigating, not just greens, but tees, fairways and almost everywhere else that will help turfgrass or ornamentals. We've allowed golf cars to be driven down fairways during wet or dry conditions. We've doubled the number of golfers. And we've become product oriented.

The superintendent remarked that too much water can have as great an effect on turf as too little. His slides showing flooded fairways and greens adequately proved his point. However, he also said that as a turfgrass manager, the superintendent must become more water conscious. "We've all heard of maintenance budgets, quality improvement budgets," he said, "but have we heard of water budgets."

Under a discussion of "Pumps For Irrigation," Robert M. Wilkin, Wilkin Irrigation and Supply Co., Irving, Tex., said that proper engineering is probably the most important factor in the success and efficiency of a complete irrigation system. "Let's all get honest," he said. "If necessary, increase our costs enough to use proper engineering, and let's educate our clients to look for proper engineering . . . Few people will make a poor choice if they understand the alternatives. In the long run, poor engineering and designs do not save money. They just divide the expense between initial costs and subsequent repair bills after installation."

The meeting took a twist in a different direction with the next speaker. Dr. Gerald L. Smith, landscape architecture and environmental planning department, Utah State University, told the delegates that by the year 2000 more than 80 percent of our population will live in urban areas. This calls for open space planning, he said. By that he meant areas dealing with wild plants currently administered by the Forest Service, USDA, etc., and lands occupying pockets, corridors and elsewhere which have been abandoned or bypassed by populations.

The current energy shortage will restrict usage of our National Parks, he predicted. However, more people will be spending time in park areas closer to home.

"Urban open spaces cannot be thought of as a single use," he said. They must become integrated into the rest of life style; they must be adaptable to a multitude of uses. He said that acquisition of open space must relate to where people are located. For example, no strictly urban person will use open space located miles from shopping centers, churches and other places normally visited.

He concluded that the potential for open space planning around major cities is good. He cited a study of the 10 largest cities which showed that 20 percent of the land has not yet been developed.

Dr. Henry Indyk, extension specialist in turfgrass management, Rutgers University, discussed the use of sprinkler irrigation on sod farms. This has been of interest to a growing number of sprinkler irrigation equipment manufacturers. Pointing out that the sod producer is generally located close to the market, Indyk said that irrigation and sod production have engaged in a romance which has definite signs of long life.

"The sod producer judges his product (sod) by the appearance and development of the rhyzome and root system," he said. "Use of irrigation minimizes the time from seeding to maturity."

He said that water reduces the chances of fertilizer burn on sod; and, it can be used to carry fertilizer to the growing plants. Many sod producers use water before harvesting. And water after installation of sod is necessary to the success of a job, he remarked.

"I'm optimistic about the future of the sod industry," he mused. "Turf plays an important role in the environment."

One further point. Dr. Indyk said that the sod farm offers a site for disposal of waste water to communities contemplating spray irrigation of effluent. In addition, sod farms can be used in the open space planning and preservation of open land.□

These two fine-leafed perennial ryegrasses were cut with the same mower. The one on the right shows the fibrous "paint brush" top which is characteristic of ryegrasses. Pennfine, on the left, took a smooth, even cut because it was bred for softer, easier to cut fibers.

Pennfine: the clean-cut perennial ryegrass.

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The remarkable mowability of Pennfine — the result of breeding specifically for soft fibers — is demonstrated in the above photograph. It was also proven by the University Park trials. Over a five-year period, Pennfine averaged 8.3 (of a possible 10) in mowability. The next best score was 7.3, and the other cultivars rated considerably lower.

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The on-off the track vehicle applies about 25 to 30 gallons per acre. In addition to being more economical than spray trains, they are more efficient and result in fewer claim damages.

TARGET: RR WEEDS

(from page 37)

to the contractors and suppliers. We then went to the regions and began surveying every mile of track to determine the amount of brush acres, species of brush present, and the areas of greatest danger.

By using a form to record the information needed, we set a priority on the lines that needed chemical application first, and the sections of the right-of-way that needed treatment. Physical requirements, such as distance of communication lines from the track were also recorded. Sometimess there are certain equipment requirements. Normally 50 to 60 feet can be reached effectively by on-off track vehicles. Greater distances may require a spray train. Another factor to consider is the time of application. Both early summer and late fall are good times to spray. In heavy agricultural crop areas where drift may be of unusual concern, perhaps it would be wise to spray in early fall.

This information can be discussed with regional personnel and then assigned priorities for lines to be treated. The information can then be carried to the railroad vegetation manager, who then can assemble the program. He has the information needed to figure the cost of treatment for each line and how much chemical is needed for each line. He can be assured that his decisions are based on facts or actual conditions as felt to be required by the regional managers.

Perhaps not all lines surveyed will be treated, but whoever is in charge of vegetation control for the railroad can be assured that the lines treated are in need and that the dollars spent are spent wisely due to programming and planning.

Milkweeds along the rights-of-way are controlled with 2,4-D or 2,4,5-T in combination with MSMA. Although the new trend is to combine the D's and T's with a herbicide which gives season-long control of many perennial weeds.

EXECUTION

Now the execution phase begins. The contract is let and work begins. The railroad field personnel and the applicator should be provided with a printed program detailing the amount of solution to be applied in a given area and which locations are to be treated. The application should be properly recorded. These records not only verify the work done, but give the necessary records for future evaluations.

EVALUATION

The only way to discern whether the railroad has got its money's worth is to evaluate the application. The evaluation phase can begin by evaluating coverage 4 to 6 weeks after application. The evaluations should be continued into the *second and third years* after treatment so that the applicator and the railroad vegetation control manager know the longevity of control.

Surveying the lines and evaluating are two of the main services a contractor performs for the railroads. The contractor also should be a resource for technical knowledge needed. What label clearance does the product have? Can another product do the same job? Can the product be used safely around water? How long does the product affect the soil? Should any claim for damage arise, is there enough research information to defend the use of the product in a court of law? Can the use of the product be justified in relation to the results obtained versus the potential problems in use? Should the product drift from the target area, what damages can be expected?

A contractor needs to be thoroughly qualified. By "thoroughly qualified," I mean he should know the Federal and state laws which regulate the use of herbicides. The state laws vary from state to state. Knowing these laws can eliminate mistakes which not only cost money but bring about unwanted publicity.

He should know the herbicides available for use, their efficacy, the degree of safety offered, the extent of their economic advantages and what effects can they have on the environment with their continued use year after year.

He should help the railroad set policy as to types of application, timing, and help determine results obtained as to weed control as well as their safe and proper use. □

Vibratory plow module on R65 vehicle.

VP12 self-contained vibratory plow.

Make underground installations *WITHOUT* destroying your turf.

Digging ditches across expensively-landscaped lawns or golf courses can be bad business. Who wants to tear up the turf to make underground installations?

Ditch Witch has the answer. In many cases you don't have to trench — you can go underground without it with a Ditch Witch vibratory plow. Turf damage is kept to an absolute minimum; most of the time-consuming and costly restoration is eliminated. You can bury telephone and electric cable, gas and water lines quickly and easily without trenching. You can install a complete underground sprinkler system on a golf course without having to close the course!

Ditch Witch makes vibratory plow modules for all its Modular-matic vehicles. Or, there's the versatile 25-HP VP12, a self-contained vibratory plow package.

If your job calls for main distribution lines, the same Modular-matic vehicle can handle that job, too — just replace the vibratory plow module with a digging module and you're ready to go.

Or, switch from trenching to plowing and back again instantly with a Ditch Witch Combo module, a vibratory plow and offset trenching assembly.

And you can outfit your basic vehicle for other jobs, too. Ditch Witch offers a versatile utility backhoe, a hydraulic boring unit and other money-saving attachments.

When your job calls for underground installation, and it's important to keep turf damage to a minimum, look to Ditch Witch — the leader in the underground equipment field.

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A Division of

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A full line of equipment from 7-HP to 195-HP

For More Details Circle (107) on Reply Card

NEMATODE CONTROL

(from page 18)

the same time with a Noer soil profile sampler.

The populations of Ring and Spiral nematodes were reduced following each nematicide application. Nematode populations in areas receiving only one application began to increase within six to eight weeks after treatment. In the areas receiving the two applications (early and late), the nematode populations increased slightly following the early application and remained at a low level for the balance of the season.

The populations in the non-treated areas were rated as very moderate during April, increased to heavy in June, July, and August, and increased to very heavy in September.

Roots in all the nematicide-treated areas penetrated 158 to 175 mm (6.2 to 6.9 inches) which was nearly twice the depth of those in non-treatments. Plots receiving the early and late applications produced approximately four times more grass clippings than the non-treated area, twice as much as the late treatment, and three times as much as the early application. The increased grass clippings indicate a more vigorous plant growth, even though this difference was not noticeable from general observation.

It is not difficult for the golf course superintendent to appreciate that the deeper root systems provide a greater ability for the plants to withstand stress periods and recover much quicker under the heavy traffic we have in Oklahoma.

Dasanit 15G has performed well for us, and our superintendents have selected the granular nematicide over the liquid fumigant because it's easier to handle. Many of the superintendents carrying out a nematode program say their greens are improved, yet they fail to understand how a little worm they cannot see could do so much damage. We suggest to our superintendents that if they are following a good maintenance program and are having difficulty maintaining a dense stand of grass, they should pull soil samples and obtain a laboratory nematode and fertility analysis.

Our nematicide trials have shown that applications of soil fumigants Nemagon or Fumazone, or the non-fumigant Dasanit will reduce populations of nematodes to a level that will aid growth of bentgrasses. Using the manufacturers' recommended rate, Nemagon 12.1EC or Fumazone 70E should be applied as a drench, at the rate of one pint with 15 to 20 gallons of water per 1000 sq. ft. **Immediately** following this, the treated area should be given a good irrigation.

When using Dasanit 15G at 1½ to 3 lbs. formulation per 1000 sq. ft., distribute the granular dosage evenly over the turf area. Drench the grass thoroughly after treatment by applying approximately one-half inch of water. Do not treat newly-seeded areas!

Remember that while these materials will reduce the population of nematodes, they do not completely eradicate them from the soil. Therefore, it would be advisable to have your greens checked annually, once nematodes have been found to be a problem.□

Outstanding Dealer Award Presented To Porter Bros.

Porter Brothers was founded in 1949 and has 96 employees. Other principals include Joseph Porter, vice president and secretary-treasurer; James Porter, vice president; and Bob Hamrick, manager of the turf division.

Announcing the new Asplundh "Whisper Chipper"

Looks the same—sounds so different!

This new unit has all the dependable features of our famous chipper line. However, there is a remarkable difference — a great reduction in noise. Modification kits will be available for many existing models. **Asplundh Chipper Company, a division of Asplundh Tree Expert Co., 50 E. Hamilton Street, Chalfont, Pa. 18914**

ASPLUNDH

For More Details Circle (117) on Reply Card

Here's help to maintain the beauty of your grounds!

Yes, reliable help. Economical help. Help against scores of different weeds, insects, and diseases that constantly threaten your greens, fairways, trees, shrubs and flowers. Help that comes from your supplier of all these Stauffer products.

Aspon® insecticide, the quick, long-lasting control for chinch bugs, devastating destroyers of turf. Usually just one application a season in the north, two in the south.

Betasan® herbicide, the sure preventive for crabgrass and goosegrass. Excellent for your campaign against poa annua in your greens. Not harmful to any of the permanent turf grasses.

Eptam® herbicide is the sure control for annual weeds in sand traps. Also controls persistent perennial weeds like nutgrass and quackgrass. Excellent for flower beds and shrubs, too.

Imidan® insecticide protects trees from destructive gypsy moth, elm spanworm, spring cankerworm and birch leaf miner. (Northeast only.)

Vapam® liquid soil fumigant cleans the soil of pests so you can replant grass, trees, and shrubs. Destroys weeds and their seeds, insects, nematodes and many fungous organisms. And you can replant without a long waiting period.

Dyfonate® soil insecticide, one of the newest effective controls for chinch bugs used by commercial operators in the southeast.

Captan fungicide is the reliable control at very low cost for brown patch, leaf spot, melting out and several other turf diseases.

Try these Stauffer products, liquid, granular and wettable powder forms, to protect beautiful grounds. For full information . . . just fill out and mail the post-paid card insert above. Stauffer Chemical Company, Agricultural Chemical Division, Dept. H.D., Westport, CT 06880.

Turf and Grounds Products from Stauffer CHEMICALS

INDUSTRY INNOVATION

NETTING FOR SOD

REALITY FROM IMAGINATION

Harvesting sod in half the usual growing time is possible with the use of Vexar plastic netting. The netting is laid when the field is seeded, and covered with one-quarter inch of soil.

A major problem in commercial sod production is the length of time the grass has to grow before it can survive handling. Often, turfgrasses are attractive and marketable in four to six months but cannot be lifted because of sod weakness. Sod producers, then must bear the cost of maintaining their fields until the necessary sod strength is achieved.

Cal-Turf, Inc., California's largest commercial sod producer, has found a way to combat the problem. By using Vexar plastic netting to anchor turf roots, the firm can harvest its sod as soon as it is marketable.

Cal-Turf, a division of American Garden Products, Inc., cultivates more than 1,000 acres on its four farms.

"Traditionally we have harvested three crops from each field every two years for an average of eight months per crop," says Steve Cockerham, production manager of Cal-Turf. "But now with the Vexar giving us sufficient sod strength to lift so much sooner, we hope eventually to cut our overall turnaround time in half. If we can get the turfgrass uniformity we seek in four months, the Vexar allows us to harvest.

"The net technique is especially good for bluegrass," he continues, who did Cal-Turf's research with the plastic netting. The company's expertise with the turf net has been gathered during the planting of more than 250 acres with the new method.

"To plant a field using Vexar plastic netting, we establish a true surface with the usual preparations, then do some extra land planning. We plant with our own machine, applying the net, seeds, and cover at the same time. The cutting depth of the netted sod is the same depth at which we cut our other sod," he says.

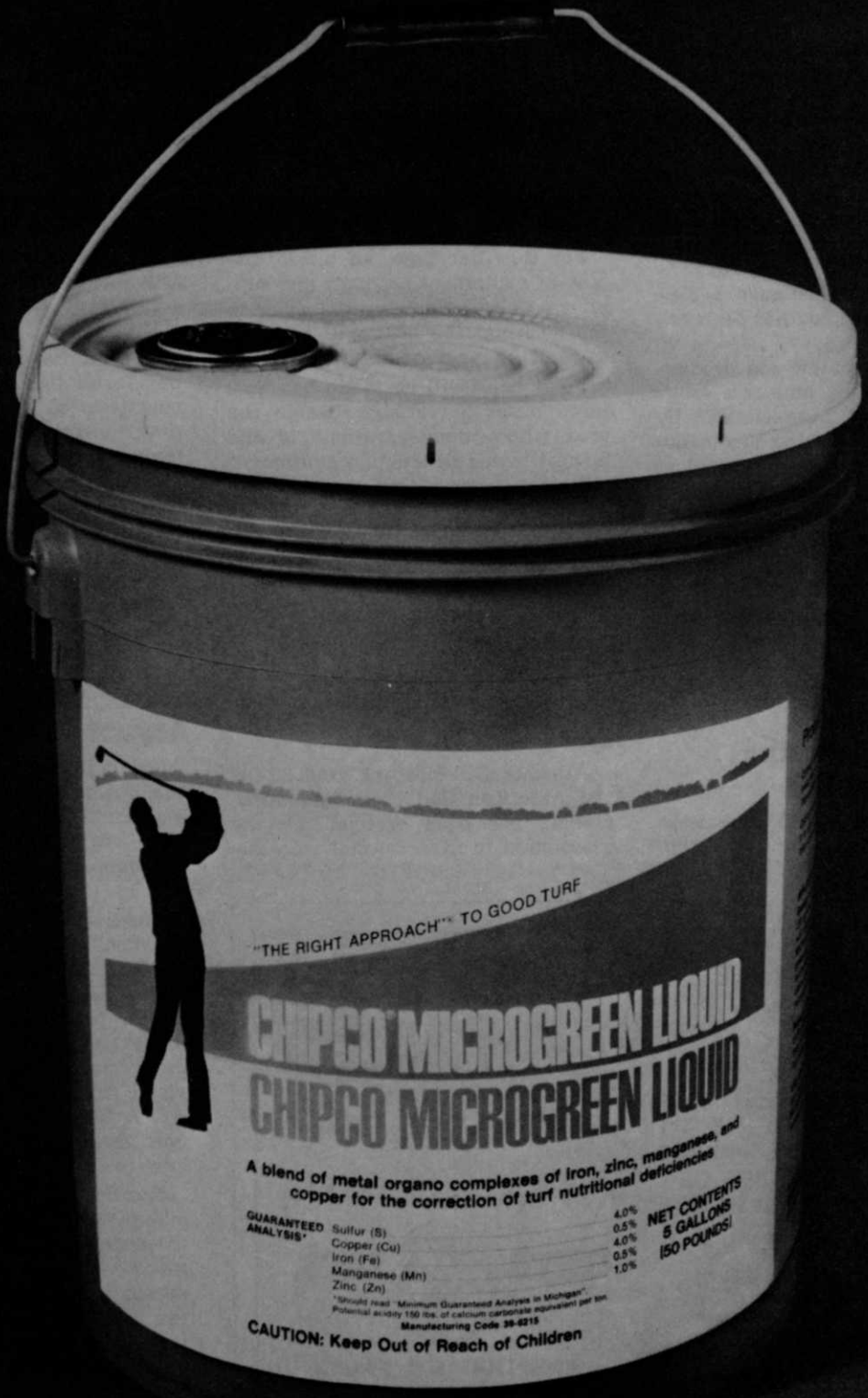
"We seeded our first field of Vexar (37 acres) with Peninsula Blend, our new blend of Pennfine perennial ryegrass and Fylking Kentucky bluegrass. The sod had more than enough lift strength at the end of four months."

The sod market continues to grow steadily, despite ups and downs in new housing starts. With less land available in populous areas, more home construction is being done on sloping, hilly sites where sodding is

(continued on page 56)

Steve Cockerham, general manager, Cal-Turf, shows how the netting helps give the sod sufficient strength to be lifted in half the usual time. Cal-Turf will have 450 acres of netted turf on its farms this year.

For More Details On Preceding Page Circle (135) On Reply Card.



Chipco Microgreen Liquid is a blend of metallic micronutrients. It will correct yellowing of turf and ornamentals caused by soil deficiencies. Treated turf and ornamentals develop healthier root systems. So they're less susceptible to disease and moisture stress. Chipco Microgreen Liquid: easy to use, effective and extremely economical.

Once you use a Chipco something, you'll use Chipco everything.

Rhodia
CHIPMAN DIVISION

For More Details Circle (157) on Reply Card

NETTING FOR SOD

(from page 54)

the most practical way to assure soil stabilization.

"Long lead times are the exception in our business," says Steve. "We deliver palletized sod to job sites within 24 hours of order placement, and we spot the sod where the contractors want it. Customer acceptance of the netted sod has been excellent."

The ability to double sod production without adding land is a long-range economy appreciated by Cal-Turf. "We're working Vexar into our fields as crops are harvested at our California farms in Camarillo, San Juan Bautista, and El Toro," he says. "Of course, our overall sales will dictate how quickly we incorporate the net method in all our fields, but now we know we can double our business before we will need more land."

ASPA Summer Meeting Slated For Maryland

The Sheraton Inn — Northeast in Washington, D.C. (New Carrollton, Maryland) will be the site of the ASPA annual convention and field days in 1974.

The Maryland Turf Grass Association is serving as the host organization and a program is being put together for both business and social pleasure.

For the first time, an inside display of equipment products and supplies will be held the night prior to the meeting; the area will be open as well on opening morning.

Field trips will be made by chartered buses to various sites in the area where demonstrations of the newest in sod production equipment will take place. "This is a real opportunity for personal inspection of various units that are available and an opportunity to update equipment and to see things in action," says Jack Kidwell, ASPA president.

Wage-Hour Litigation Draws ASPA Legal Help

Attorney Bill Harding, counsel for the American Sod Producers Association, has been directed by the association to file a special brief in behalf of a wage and hour suit involving a ASPA member.

Because of the nature of the case, the board has ruled that a decision by a court could have direct influence and bearing on every U.S. sod producer. Board members believe that the decision could have impact on the future of the sod industry and thus have solicited the services of ASPA attorney, Bill Harding.

The intervention will consist only of a brief field by Harding. Financing is to be supported by sod producer members who are willing to make contributions outside the ASPA budget. Members may submit a voluntary contribution by check made out to ASPA, c/o Association Building, 9th and Minnesota, Hastings, Nebraska 68901, and noted thereon "legal brief."

Winter Sod Conference Attracts 160 Producers

An action-packed meeting about the business end of sod production was the drawing card for about 160 members of the American Sod Producers Association in early February.

Meeting in New Orleans in the heart of Bourbon Street's heavily sodded nightclub and fun district, members concentrated on the mid-winter conference theme: "How to make and keep a buck!" The two day cram session was essentially divided into two parts. Bill Harding, ASPA legal counsel, headed part one: dealing with government and how to survive.

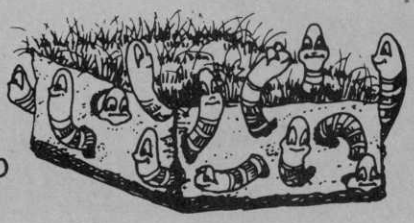
Harding's legal expertise was manifested in his ability to explain the details of Federal laws affecting the sod producer. He has the subtle persuasiveness of a trial lawyer and the pounding authority of a distinguished college professor. His best quality; however, is in communicating the little known to the uninformed. He talks the sod producer's language in their terms.

Thus, when it came to the nitty-gritty of OSHA, unions, energy regulations, wage and hour regulations, Phase IV, and Interstate Commerce Commission matters, Harding competed most favorably with the attractions on Bourbon Street. The February meeting covered in more detail many of the aspects discussed by Harding during the ASPA summer meeting. Only this time, it was more real. Some sod producers

(continued on page 58)

IT'S A FACT...

OVER A MILLION EARTHWORMS CAN INHABIT AN ACRE OF SOIL... DARWIN ESTIMATED THAT IN ONE ACRE, UP TO 10 TONS OF SOIL PASSES THROUGH THE BODIES OF EARTHWORMS EACH YEAR.



MOST CULTIVATED LAND in humid areas of the U.S. WILL ERODE AT AN AVERAGE OF 1 INCH OR MORE PER CENTURY.

NOTHING CAN MATCH terra tack

HOLDS THE EARTH IN PLACE

...AND THAT'S A FACT!

Terra Tack as a spray helps control soil erosion.

- TERRA TACK HELPS PREVENT EROSION WHEN USED AS AN OVERSPRAY BY HOLDING STRAW OR HAY IN PLACE.
- TERRA TACK, IN A SLURRY OF SEED, FERTILIZER, AND FIBER, FORMS AN ADHESIVE TO HELP PREVENT EROSION.
- TERRA TACK'S COST?... AMAZINGLY LOW!

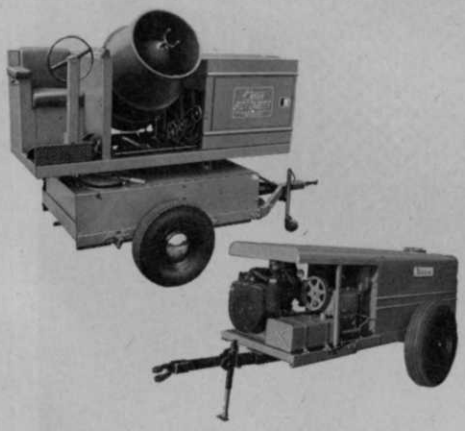
WITH TERRA TACK

WITHOUT TERRA TACK

Grass Growers

Box 584, Plainfield, N. J. 07061 (201) 755-0921

Seasonal leaf drop is one thing...



...but loss of leaves through bark and leaf infestation is quite another. To protect your shade trees, a well-planned spray program is well worth the time it requires — and BEAN® spraying equipment is the best way to go. FMC's Rotomist® controlled-air sprayers for example, are engineered to give you maximum penetration and assure you the best possible coverage and protection. FMC's Royal high pressure sprayers also afford you the versatility and performance you need...are available skid-mounted or in trailer models, with hose and gun for effective shade tree applications. You won't find any better tree protection than with BEAN sprayers. Contact your nearest FMC representative for a demonstration today, or write:

FMC Corporation
Agricultural Machinery Division
Jonesboro, Arkansas 72401

FMC Environmental Equipment

For More Details Circle (111) on Reply Card

WINTER SOD CONFERENCE

(from page 56)

have been stung by Federal regulations, particularly wage and hour laws. The Nebraska attorney quickly sifted out the thatch and dove for the roots of the problem.

It might be summarized that Harding awakened a need among sod producers to have in their possession up-to-the-minute information regarding Federal laws that affect their business.

A second speaker during the first session was Stu DeBruicker of the Harvard Business School. He led the group through an exercise in marketing and planning, using case history and analytical approach.

Section two was show-and-tell. Following the well-known psychology that sod producers want to know more about what other sod producers are doing, this session passed the ball back to the membership. Then the fun began.

Don White, Iowa Nursery Sod Corp., Des Moines, discussed how he sells firewood in the winter as an extra source of income. Bill Latta, Princeton Turf of Kansas City, Mo., outlined his maintenance procedures for equipment repairs during the off season. John Dol, Cookstown, Ontario, Canada, and Dale Habenicht, H & E Sod Nursery Inc., Tinley Park, Ill. reported on trucking operations during the winter months.

Ted DeLalio, DeLalio Sod Farms, Inc., Dix Hills, N.Y., Norm LeGrande, Lincoln, Nebr. and Tom Thornton, Thorntons Turf Nursery, Elgin, Ill. all spoke on their experience with routing orders.

One interesting discussion given by Jim Reynolds, Reynolds Turf Farms, Inc., Brighton, Colo. involved pasturing sheep on sod. H. B. Michelson, Michelson Ranch, Elk Grove, Calif. reported on his cattle feeding operation to utilize turf clippings.

Allen Freeborg, Henderson, Colo. presented his views on maintaining customer relations. He spoke on credit and collections in the sod business. Along the same line, Mel Smilsky, Cookstown, Ontario, Canada, reported on how to obtain replacements. Guarantees of sod installation, quality, etc. were discussed by George Schaaf, Patterson, Calif. Problems in relations with customers were brought out by Howard Fairty, Milliken, Canada.

Other sod producers recalled their experiences under the general heading of personnel management. Bill Johnson, Halmich Sod Nurseries, Inc., East Lansing, Mich., talked about acquiring and keeping field help. The owner-manager concept was explored by John Hope, Manderley Turf Farms, Ltd., North Gower, Ontario, Canada. Emory Patton, Turf Center Inc., Silver Springs, Md. pointed out ways to increase employee productivity. Cecil Collings, Green Valley Turf Farms, Inc., presented his views and experiences with delegating work.

"Everyone attending had an opportunity to discuss his problems and hear about other experiences," commented Jack Kidwell, ASPA president. "We had a standing room only sell out at the banquet which featured a presentation of Mardi Gras Preview."

Sod producers from other countries were an integral part of this year's meeting. Ragnar Browall, Falkoping, Sweden, flew in from his northern home to learn more about sod production U.S. style.

Meeting site of the summer meeting will be the Sheratan Inn—Northeast in Washington D. C. (New Carrollton, Md.). Dates are July 16-19. □

Start an underground movement to get the grass greener on your side of the fence.

A Certain-teed pipe irrigation system goes underground so quickly, your turf is back in good order in just a few days. That's because Certain-teed PVC or asbestos-cement pipes are so lightweight and easy to install.

Since neither will corrode like metal, there's no interior obstruction to build up and hinder flow. You get more water for less pressure. Joints are bottletight because of FLUID-TITE™ heavy rubber gasket construction.

Because you spend less to install it and practically nothing to maintain it, a Certain-teed system will pay for itself quickly. For full information, write Certain-teed Products Corporation, Pipe & Plastics Group, Box 860, Valley Forge, Pa. 19482.

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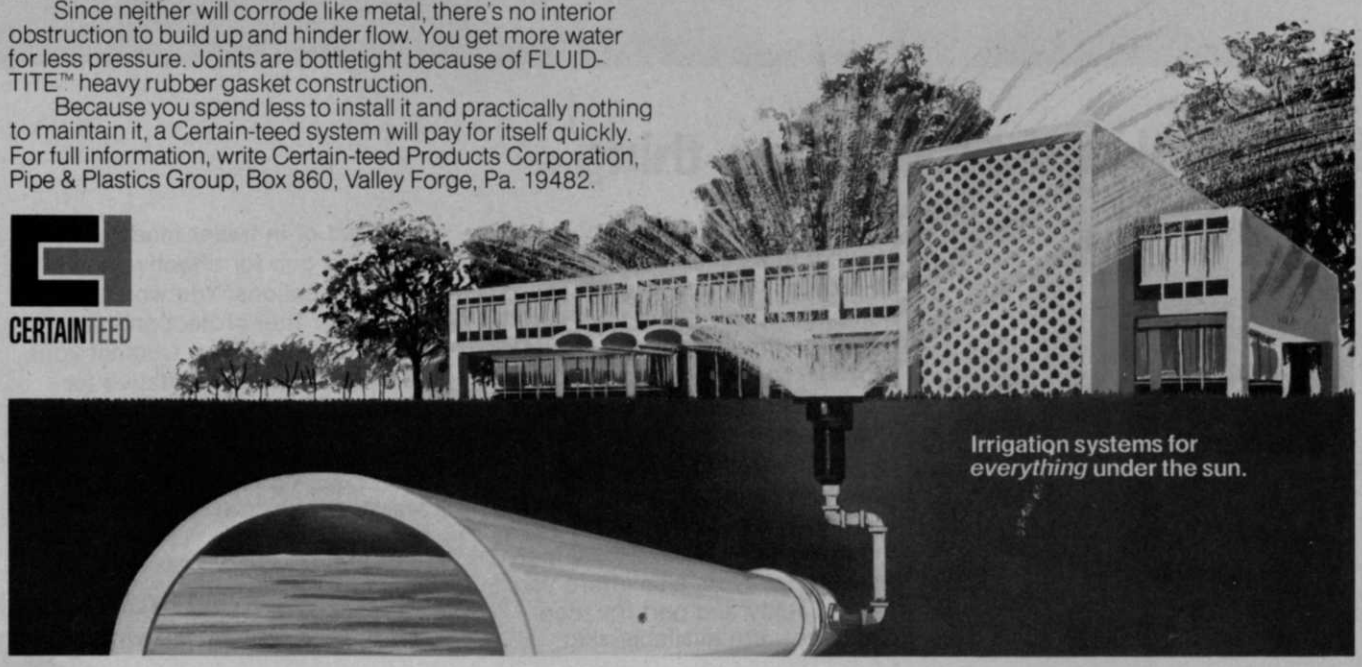

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Flymo®

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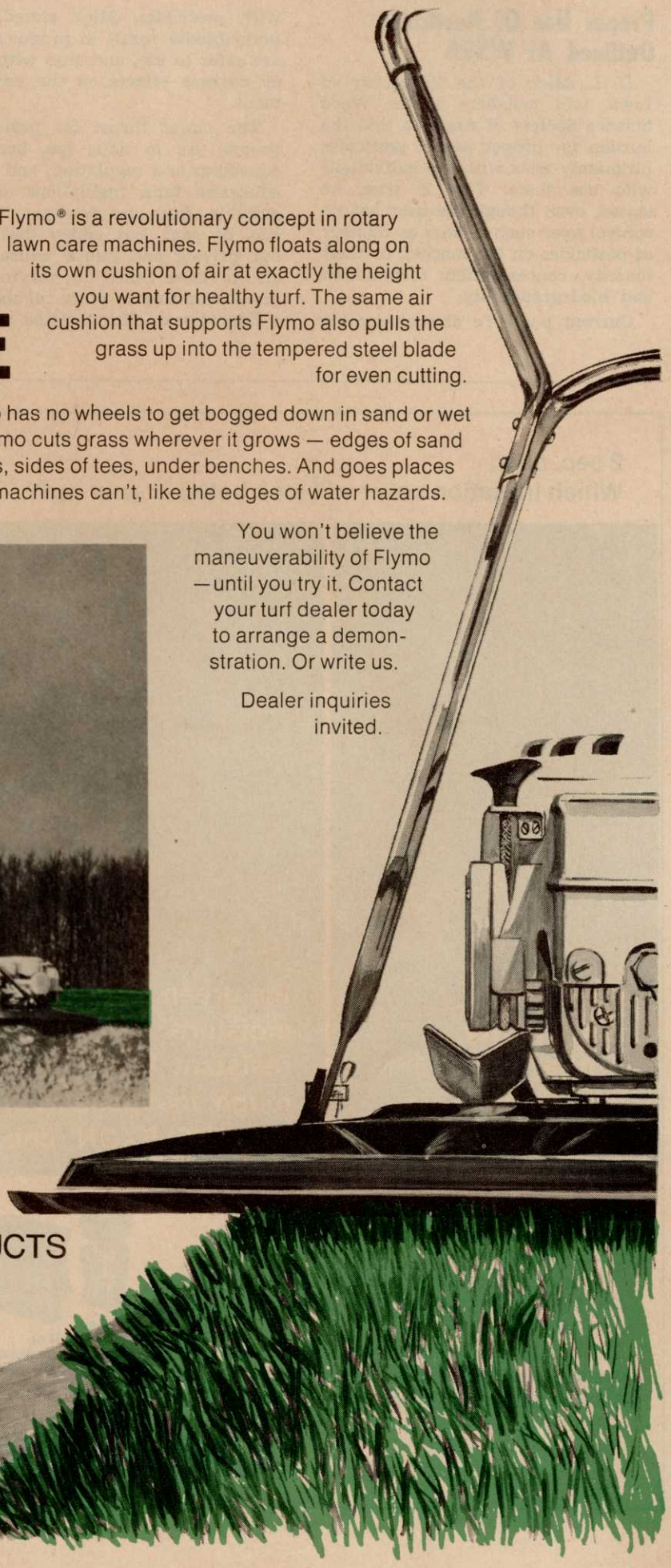
WITHOUT WHEELS.

Flymo® is a revolutionary concept in rotary lawn care machines. Flymo floats along on its own cushion of air at exactly the height you want for healthy turf. The same air cushion that supports Flymo also pulls the grass up into the tempered steel blade for even cutting.

Flymo has no wheels to get bogged down in sand or wet ground. Flymo cuts grass wherever it grows — edges of sand traps, sides of tees, under benches. And goes places wheeled machines can't, like the edges of water hazards.

You won't believe the maneuverability of Flymo —until you try it. Contact your turf dealer today to arrange a demonstration. Or write us.

Dealer inquiries invited.



FLYMO PRODUCTS
KELTEC INC.
2310 Industrial Parkway
Elkhart, Indiana 46514

For More Details Circle (152) on Reply Card

Proper Use Of Pesticides Outlined At WSSA

D. L. Mick of the University of Iowa, told members of the Weed Science Society of America that the burden for proper use of pesticides ultimately rests with the individuals who use them. This is true, he stated, even though the user has no control over such factors as number of pesticides on the market, or their toxicity, concentration, formulation and biodegradability.

Current public disenchantment with pesticides, Mick stated, will undoubtedly result in products that are safer to use, and ones with fewer adverse effects on the environment.

The major thrust for promoting proper use to date, has been by education and regulation, and when education fails, regulations are inevitable. Both are necessary methods, he said, but added that both our private and public educational efforts have failed to varying degrees, resulting in more regulations.

Educational efforts aimed at promoting proper pesticide use must be an integral part of any situation involving these chemicals, Mick stated. To do otherwise, will undoubtedly result in further restrictions of those products which have been so beneficial for modern agriculture.

2 sec. quiz:
Which irrigation cover will look better in your turf?

Quiz fast and easy? As easy as installing thermoplastic boxes with our exclusive "ever-green" covers.

That's why thousands are in use today coast-to-coast. Bought for their benefits. Blending beautifully with their turf.

Take the next easy step. Write today for complete details to AMETEK, Plymouth Plastics Division, 502 Indiana Avenue, Sheboygan, Wisconsin 53801.

Choose pits (round) or boxes (rectangular). Both available with cosmetic "ever-green" covers.

AMETEK

Phase IV Price Controls Rules On Sod Production

As a result of efforts by ASPA, the Cost of Living Council has issued a statement as regards Phase IV price controls and their relationship to sod production. The Council has stated that the production of grass involves a raw agricultural product and is therefore exempt from Phase IV price controls.

However, they have likewise ruled that sod installation is determined by the Cost of Living Council and must be considered "landscaping service" and therefore within the definition of construction operations.

The small business exemption of 60 employees or less does not apply to sod installation unless the annual sales and revenue from sod installation are less than $1,000,000.

It is likely that most ASPA members would fall under the $1,000,000 maximum income from sod installation, says Bill Harding, ASPA counsel. Exemption under both types of operations (production and installation) could be claimed as far as price controls are concerned.

Golf Course Builders Elect New Officers

Frank A. Underwood has become the fifth president of the Golf Course Builders of America.

Underwood heads the Underwood Golf Course Construction Co., of Bowie, Texas, and has been building golf courses for 14 years. He served as GCBA's president-elect in 1973, and assumed the top elected spot in the golf trade group at its third annual dinner in Anaheim, Calif.

Other new GCBA officers are: President-Elect: Lyle Thompson of Culpeper, Va., a vice president of Moore Golf Inc.; Vice President: J. R. Costin of Charlotte, N.C., president of E. H. Coffey & Associates; Secretary: Eugene M. Witter of Findlay, Ohio, a sales executive of Hancor Inc.; and Treasurer: Eugene M. Brown of Greenville, N.C., vice president of Hendrix & Dail.

USE SOME SELF CONTROL

Ordinary slow release nitrogens just can't seem to control themselves. In fact, their behavior is as fickle as the weather.

Typical urea-formaldehyde nitrogens release very fast in hot weather and almost not at all in cold weather. They have very little self-control.

IBDU is a unique slow release nitrogen source. Its release rate is primarily dependent upon normal soil moisture and its own particle size.

And that means that IBDU gives the best feeding control. IBDU's release rate and availability won't drastically change when the weather or soil bacterial activity change.

By using IBDU, you can regulate your turf's response, because the rate at which your turf is fed is more closely controlled.

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PROFESSIONAL PRODUCTS (isobutylidene diurea)

Now that you know you can control your turf's response more closely by using IBDU, and that only Par Ex contains IBDU, it makes a lot of sense to buy only Par Ex products.

That's using self-control.

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The heart of the sprayer is the SMITHCO THUNDERBIRD 2-stage centrifugal pump. With only 3 moving parts, it can deliver up to 50 gpm. The Smithco Fiberglass tank combines the absolute maximum in corrosion resistance and agitation with ease of cleaning and excellent appearance.

- *Low Maintenance*
- *All models available either on skid or with trailer*
- *Write for demonstration or further information.*

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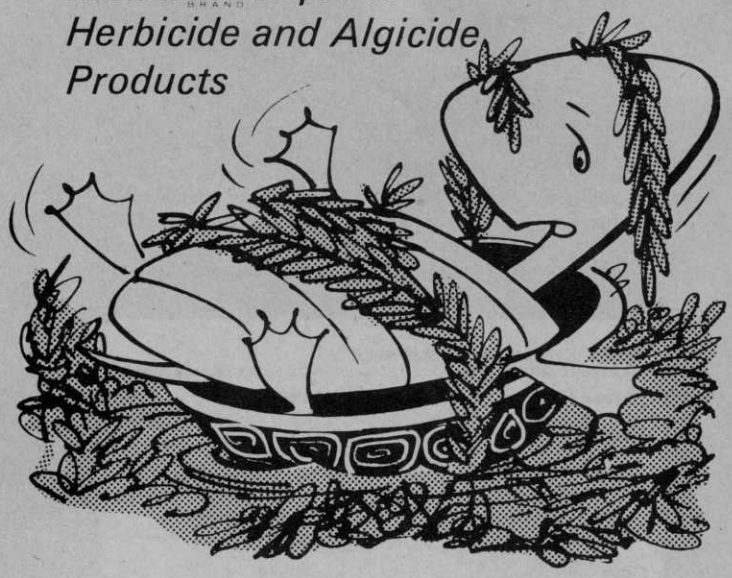
WHEN WEEDS and ALGAE MAKE LIFE MISERABLE...

it's time you found the **Mariner** BRAND *Aquatic Herbicide and Algicide Products*



For information on this new and growing line of 3M aquatic weed and algae control products, write: Plant Care Systems, 3M Company, 3M Center, P.O. Box 33050, St. Paul, Minn. 55101. Or call 305/943-0481.

3M COMPANY

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For More Details On Preceding Page Circle (120) On Reply Card.

—insect report—

INSECTS OF ORNAMENTALS

SPRUCE APHID
(Elatobium abietinum)

NORTH CAROLINA: Damage observed on yard-planted spruce in Waynesville, Haywood County. This is second report of occurrence in Eastern U.S. and is a new county record. First observation of damage made during December 1967 on ornamental white spruce (Picea glauca).

BLACK THREAD SCALE
(Ischnaspis longirostris)

OKLAHOMA: Moderate on *Philodendron pertusum* in retail outlet in Oklahoma City, Oklahoma County. This is a new State record.

FALSE SPIDER MITE
(Brevipalpus lilium)

ALABAMA: Populations developed to extreme levels on 20 large azalea plants at building in Auburn, Lee County. All leaves heavily bronzed; several hundred mites and eggs noted per leaf.

TEA SCALE
(Fiorinia theae)

ALABAMA: Heavy and damaging on camellia and holly at such southern locations as Atmore, Escambia County and Monroeville, Monroe County. Lighter populations observed on numerous sasanqua plants at Dothan, Houston County. MISSISSIPPI: Very heavy on camellia leaves in Washington and Bolivar Counties.

FIRE ANTS
(Solenopsis spp.)

SOUTH CAROLINA: *S. invicta* (red imported fire ant) collected in Greenville County. This is a new county record. Infestation (about 30 mounds) in localized area around one building. Eradication efforts planned, nearest infestation about 100 miles southeast of Greenville. TEXAS: Heavy populations and mound building activity by *S. geminata* (fire ant) and *S. xylonia* (southern fire ant) reported on pastureland in De Witt County. Increased mound building activity by *S. invicta* reported in many other counties in this area.

DIASPIDID SCALE
(Gymnaspis aechmeae)

ALABAMA: Heavy infestation occurred in bromeliad plants in greenhouse at Auburn, Lee County. This is a new State record.

PERIODICAL CICADA
(Magicicada septendecim)

TENNESSEE: Damaged tender growth on several ornamental species in Shelby County during 1973 growing season. Oviposition punctures caused one-year growth to die in many cases.

BENEFICIAL INSECTS

LADY BEETLES

KANSAS: Trace populations of *Hippodamia convergens* (convergent lady beetle) active adults observed in alfalfa stubble in Elk County field. MISSISSIPPI: Thousands of *Coleomegilla maculata* adults readily found in Bolivar and Washington Counties. Some became active during warm weather last week of January but recent cold weather decreased activity.

CONVERGENT LADY BEETLE
(Hippodamia convergens)

NEW MEXICO: Lady beetles, mostly this species, increased in alfalfa; 1-10 larvae per square foot very common.

BRACONID WASP
(Lysiphlebus testaceipes)

OKLAHOMA: Heavy parasitism (up to 90 percent) caused a decline of *Schizaphis graminum* (greenbug) in wheat in Washita County; adults ranged up to 10 per linear foot in some wheat in Jackson County. Moderate parasitism of greenbug noted in Grady County, light parasitism noted in Bryan County.

TURF INSECTS

CHANGA
(Scapteriscus vicinus)

FLORIDA: Adults appeared at lights last week of January at Gainesville, Alachua County. Due to warm weather, dispersal flight starting earlier than usual. Mated females can be expected to dig into turf and cause damage after dispersal flights.

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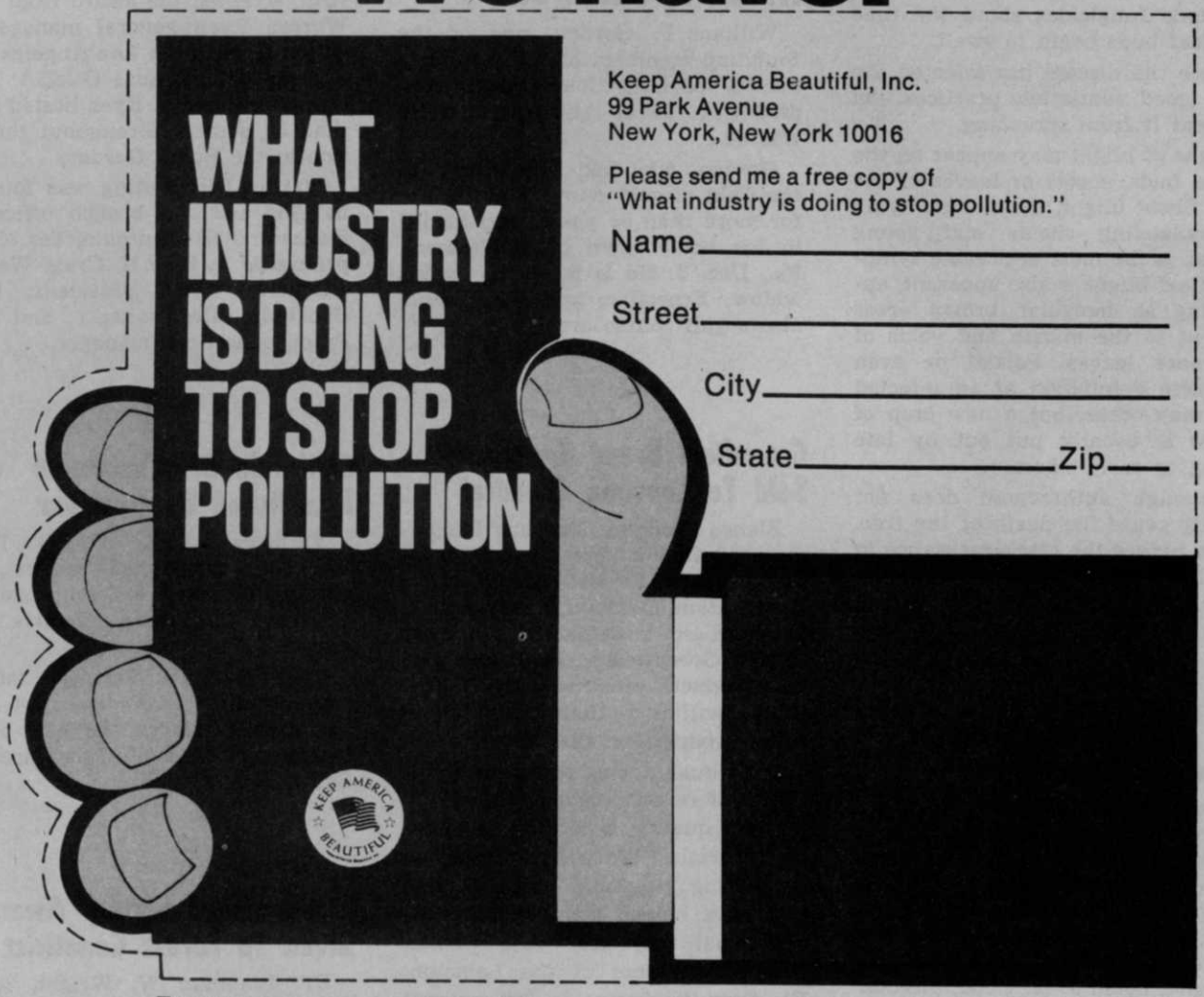

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Sycamore Blight Infection Triggered By Wet Weather

Last spring's excess of cool wet weather accelerated the spread of a number of fungus diseases which attack ornamental trees and shrubs.

One of these diseases that made a sweep through the mid-western states last year was sycamore blight or anthracnose (Gnomohia planti). Most tree care specialists say this disease does more damage to sycamore trees than any other disease in the mid-continent.

Sycamore anthracnose has no known cure, but can be prevented by spraying protective fungicides such as maneb compounds (M-45, Manzate 200) and some of the new systemic fungicides about the time the leaf buds begin to swell.

Once the disease has infected the tree, good sanitation practices can prevent it from spreading.

Signs of blight may appear on the twigs, buds, shoots or leaves of the tree. Shoot blight, the sudden dying of expanding shoots and young leaves, is the most noticeable sympton. Leaf blight is also apparent, appearing as irregular brown areas ajacent to the midrib and veins of sycamore leaves. Partial or even complete defoliation of an infected tree may occur, but a new crop of leaves is usually put out by late spring or early summer.

Although anthracnose does not usually cause the death of the tree, it can reduce the tree's resistance to attacks by other insects and diseases.

Pest Management Director Gives Nod To Integration

The major objective of the USDA pest management pilot projects, is to develop multiple and alternate choice systems for controlling insects, weeds, diseases and nematodes, and systems which are effective, economical and environmentally sound, noted J. M. Good, director of pest management programs for the USDA Extension Service.

The ultimate goal, Good said, is to promote effective use of combinations of cultural, biological and chemical methods for integrated pest management.

The first pilot programs were established in 1971 to provide more effective use of pesticides on cotton. Subsequently, the program has been expanded to include 39 current projects in 29 states on 19 major crops.

The development of integrated pest management projects, Good said, is progressing from simple to complex systems, depending on environmental factors, crops involved and nature of pest complexes. As technology and experiences permit, integrated pest management — or crop protection — will be accomplished by systems analysis, and management of weeds should become an integral part of pest management schemes.

Golf Course Architect William F. Gordon Dies

William F. Gordon, one of the founding members of the American Society of Golf Course Architects, died Nov. 30 at Abington, Pa. He was 80.

Gordon, who had been active in the field of golf course architecture for more than 53 years, was buried in his home town of Doylestown, Pa., Dec. 3. He is survived by his widow, Ernestine, and son, David, also a golf course architect.

Greenfield Brand Trademarks Sold To Lebanon Chemical

Elanco Products Company has announced that it recently completed arrangements for Lebanon Chemical Corporation, Lebanon, Pennsylvania, to purchase trademarks of former Elanco Greenfield® lawn and garden products, effective July 1, 1974. Elanco will discontinue marketing of these products on that date.

Individual names of major products will remain unchanged, as will product quality, according to Lebanon officials. "We will continue the supporting programs with dealers that have helped make these products what they are," said Vernon Bishop, president of the Lebanon, Pa. firm. "Lebanon is 100 percent committed to continued sales growth for these lawn and garden products. We look forward to working with each dealer." He added that the overall appearance of the familiar packaging will be the same.

A. M. McVie, Elanco president, said, "This change is being made to maximize the resources of both organizations. Elanco will continue to supply those active ingredients that it manufactures and devote considerable effort to the development and testing of new products. Our long association with Lebanon convinces us they will put vigorous effort behind these products and give effective merchandising support to all dealers."

Outstanding Dealer Award Presented To Watson Dist.

Watson Distributing Company, Inc., of Houston, has been named the 1973 Outstanding Dealer for Ryan turf care equipment.

John T. Watson, president of the firm, accepted the award from Vern Worrel, Ryan general manager, at Busch Gardens in Los Angeles during the 45th annual GCSSA Turf-Grass Conference. Ryan hosted more than 50 dealers throughout the nation at the Busch Gardens.

Watson Distributing was founded in 1956 and has branch offices in Dallas and San Antonio, Tex. Other principals include H. Craig Watson, executive vice president; Gene Bockholt, sales manager; and John Pytel, operations manager.

California Distributorship Established By Vermeer

Vermeer Manufacturing Co., Pella, Iowa has established its first, exclusive Vermeer distributorship in Southern California, effective January 1, 1974.

Bob Qualls, a Vermeer factory representative for the past two years, will manage the new outlet located at 1401 E. Pomona Street in Santa Ana.

Distinguished Faculty Award Given To Forest Geneticist

Dr. Jonathan W. Wright, forest geneticist at Michigan State University, recently received that institution's Distinguished Faculty Award.

An internationally known researcher and teacher, Wright conducts the largest and most varied genetics program in the U.S. He has contributed to the black walnut planting program in Michigan and is now testing elms to find resistance to the Dutch elm disease.

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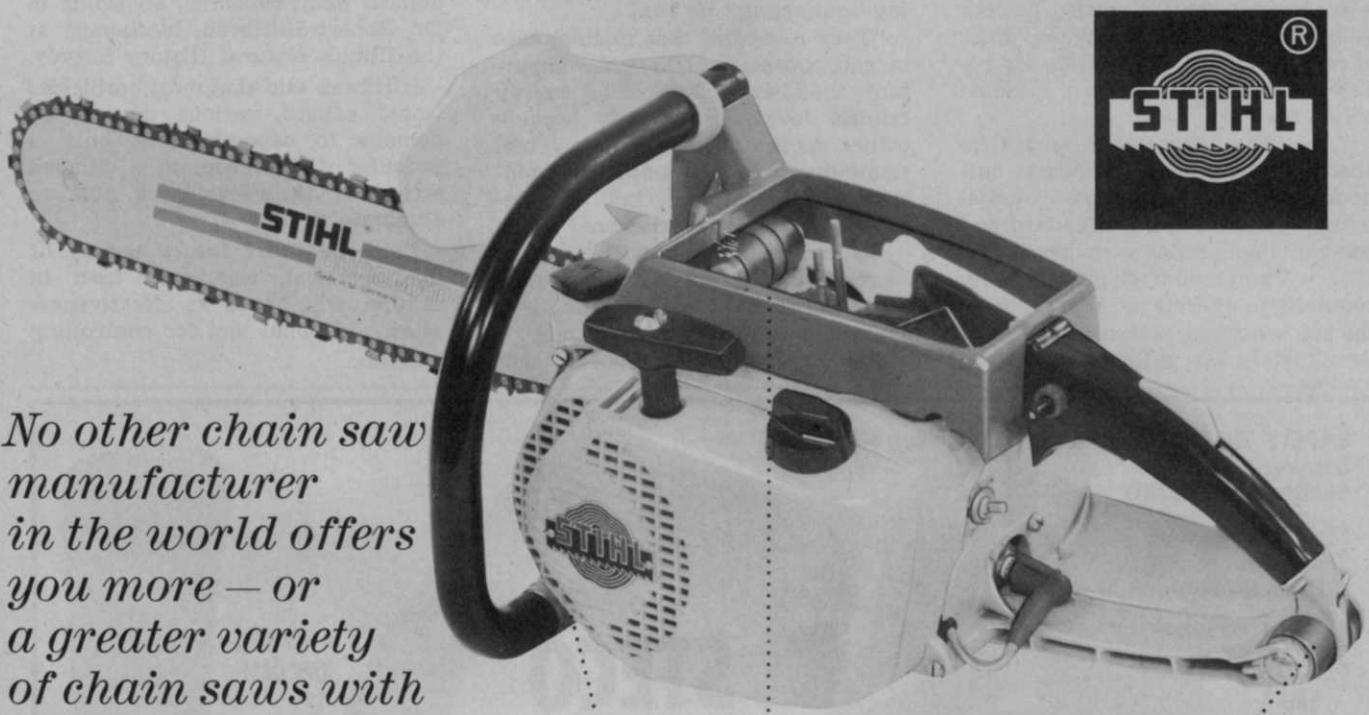

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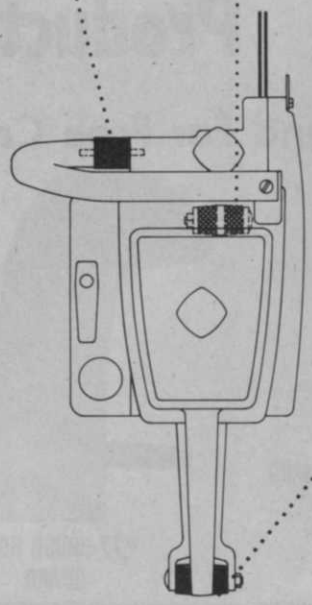

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Record Six Months Sales Reports Toro Company

The Toro Company has reported sales of $47,804,000 for the six months ended Jan. 31, 1974, an increase of 13 percent over the $42,222,000 reported for the first half of the preceding fiscal year.

Earnings after taxes from continued operations for the six-month period were $1,373,000 or $.55 per share, up six percent over the same period last year. Both sales and earnings for the first half of fiscal 1974 were new records, David T. McLaughlin, Toro president, said.

Toro included with its report to shareholders a position paper on "Toro and the Energy Crisis." In it, Mr. McLaughlin stated, "We do not foresee any major impact on our sales due to gas shortages. Even severe rationing of gasoline, we believe, would have only a minimal effect for these reasons:

". . . The homeowner recognizes that his lawn mower and other outdoor power equipment are essential home appliances that safeguard and increase his property values."

". . . The amount of gas normally required to operate a rotary mower during a normal season's use is approximately six gallons. Toro's exclusive high torque engines use substantially less gas — up to 35 percent less — reducing the gas required to only four to five gallons for the season."

"As for the higher horsepower engines on our larger turf maintenance equipment, we recently conducted a survey of leading golf course superintendents — from Florida to the state of Washington — to determine what effect the energy crisis had on our primary market for this equipment.

"The common thread that ran through all their reports was that labor costs far outweigh fuel costs. Any increase in fuel costs only makes it that much more important, they said, to reduce labor costs through the use of sophisticated, labor-saving equipment," he said.

"They recognize that maintenance of golf courses will be more important than ever if a true energy crunch develops, not only because owner/operators have a heavy real estate investment that must be maintained and protected, but also because less gas for recreational travel — by car or plane — will bring an increase in the use of recreational areas closer to home, such as golf courses, parks and playgrounds."

The Toro president reported that orders are at record levels, reflecting, he felt, the mounting concern of consumers with increasing prices and products shortages.

Although the outlook for the second half of the fiscal year is "tempered somewhat by forecasts of sluggish economic growth," Mr. McLaughlin concluded, "we nevertheless are confident that sales and earnings for the fiscal year will attain new records for the company."

Preliminary Herbicide Tests Halt Growth Of Cabomba

Preliminary studies indicate that a granular dichlorprop is an effective herbicide for controlling the aquatic plant cabomba, according to Dr. Robert Hiltibran, biochemist at the Illinois Natural History Survey.

Hiltibran said that most herbicides tested caused various degrees of damage to cabomba, but only a granular dichlorprop, in a delayed action of 12 weeks, was able to eliminate it.

He hoped that future testing of this chemical, commonly used in Europe, will prove its effectiveness as an additional tool for controlling cabomba.

For More Details Circle (119) on Reply Card

meeting dates

All Ohio Safety Congress and Exhibit, 44th annual meeting, Sheraton-Columbus, Columbus, Oh., Apr. 16-18.

Perlite Institute, Inc., 25th annual meeting, Broadmoor Hotel, Colorado Springs, Co., Apr. 19-24.

National Water Safety Congress, annual meeting, Heart O'Town Motor Inn, Charleston, W. Va., Apr. 21-24.

Southern California Turfgrass and Landscape Horticulture Institute, annual session, Royal Inn, Anaheim, Calif., April 23-24.

Arizona Turfgrass Conference, Sheraton-Pueblo Inn, Tucson, Arizona, May 1 and 2.

California Fertilizer Conference, Anaheim, Calif., May 2 and 3.

Western Chapter, International Shade Tree Conference, annual meeting, Del Monte Hyatt House, Monterey, Calif., May 19-22.

Florida Nurseymen and Growers Association, annual convention, Dutch Inn, Lake Buena Vista, Fla., May 23-25.

American Society of Landscape Architects, 74th annual meeting, Americana Hotel, Bal Harbour, Miami Beach, Fla., June 30-July 4.

American Association of Nurseymen, annual convention, Four Seasons-Sheraton Hotel, Toronto, Ont., July 13-17.

American Sod Producers Association, summer meeting, Park, Fla., July 14-17.

American Sod Producers Association, summer meeting, Sheraton Inn-Northeast, Washington, D.C. (New Carrollton, Md.) July 16-19.

American Society for Horticultural Science, 71st annual meeting, and **Canadian Society for Horticultural Science,** 19th annual meeting, University of Guelph, Ontario, Aug. 11-17.

International Shade Tree Conference, Golden Anniversary meeting, Atlanta, Ga., Aug. 18-23.

National Hardware Show, 29th annual show, New York Coliseum, New York, N.Y., Aug. 25-29.

Professional Grounds Management Society Conference, annual meeting, Crown Center Hotel, Kansas City, Mo., Sept. 3-7.

International Plant Propagators' Society, Western Region, 15th annual meeting, Mission Bay area, San Diego, Calif., Sept. 4-6.

International Pesticide Applicators Association, Seattle, Wash., Sept. 18-21.

American Horticulture Society Congress, Washington, D.C., Oct. 10-12.

Central Plains Turfgrass Conference, K-State Union, Kansas State University, Manhattan, Kan., Oct. 23-25.

CONEXPO '75, McCormick Place and International Amphitheatre, Chicago, Ill., Feb. 9-14.

Southern California Turfgrass Council, 14th annual exposition, Orange County Fairgrounds, Costa Mesa, Calif., Oct. 23-24.

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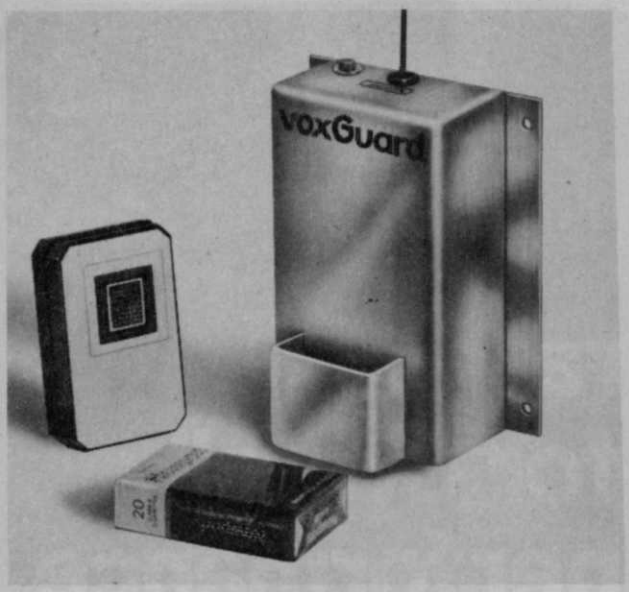


VOICE-ACTIVATED SAFETY DEVICE: Vox Industries, Inc., Independence, Ia.

This new safety device is designed to stop a machine at the critical moment to prevent or minimize operator injury. It is activated by the operator's voice and is immune to engine sounds and other mechanical noises. The six-ounce, cigarette pack-sized transmitter is carried in a pocket or worn on the operator's clothing. When activated by a shout or scream, it transmits a radio signal to the machine-mounted receiver unit. The receiver unit instantly shuts off the machine's electrical power or fuel supply. For more details, circle (701) on the reply card.

POWER-KART: SNOW CO. Omaha, Neb.

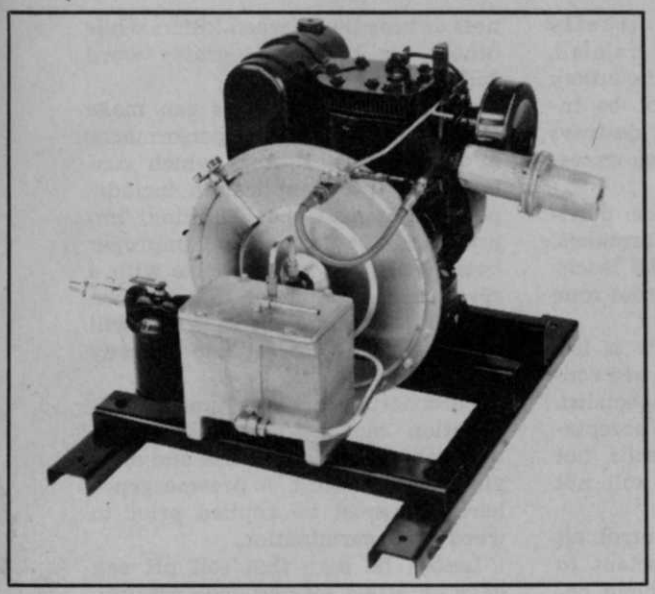
This rugged, three-wheeled grounds maintenance vehicle features a unique variable speed, torque amplifier drive unit. The cart seats two people, hauls up to 350 pounds and is equipped with spring-loaded front fork suspension. Wide flotation-type rear tires buck through mud, snow and sand and at the same time prevent compaction when driven over turf. For more details, circle (702) on the reply card.

HEAVY DUTY 22 INCH SELF-PROPELLED MOWER: Bunton Co., Louisville, Ky.

Front-wheel drive with extra large (10 x 2.75) tires makes this mower more maneuverable and easier to handle in rough terrain. Without engaging or disengaging a clutch, you can trim around shrubs, trees and the hard to get changes of cutting height. This model is equipped with a 4 hp engine, a five-quart fuel tank and a snorkel-type air cleaner mounted on the handle. For more details, circle (703) on the reply card.

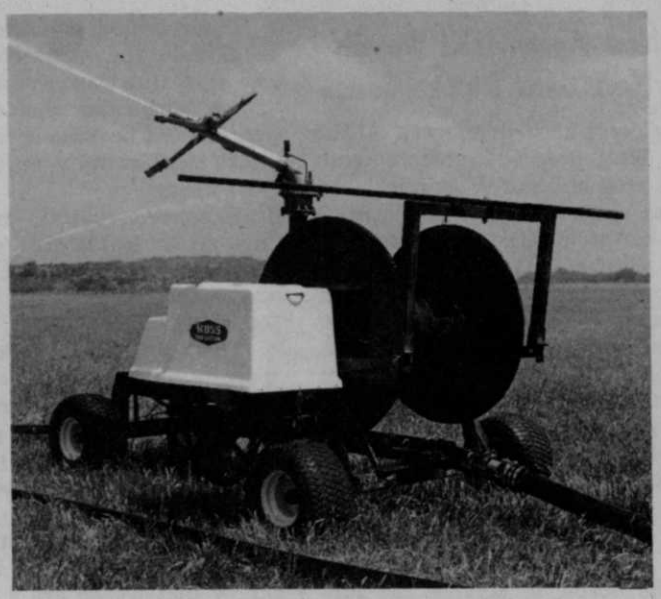
"LANDSCAPE SPECIAL" SPRIG PLANTER: Bermuda King Co., Okarche, Okla.

Small and highly maneuverable, this machine works and handles easily in close quarters with a small tractor. Strictly a one-man operation, it is the ideal sprig planter for estates, golf courses, industrial and public parks. It automatically inserts the sprigs to proper depth, in 2 inch row spacings. Instant setting provide 5 to 100 bushels of sprigs per acre. It mounts easily on any three-point tractor hookup. For more details, circle (704) on the reply card.



LARGE AREA OUTDOOR MOSQUITO FOGGER: London Fog Co., Crystal Bay, Minn.

This heavy duty aerosol generator incorporates a new method of low micron size fluid particle generation which produces accurate particle size control with 80 per cent of the particles less than 20 microns in diameter or smaller. The result is a miner insecticide fog which remains in suspension longer and does a better job of mosquito control. Its powered by a Kohler cast iron industrial engine with electric starter and generator. The insecticide tank holds 11 gallons. The total weight of the unit is 180 pounds. For more details, circle (705) on the reader reply card.



SELF-PROPELLED IRRIGATOR: Boss Irrigation Co., San Angelo, Tx.

This self-propelled, water driven unit is ideal for use on any uneven odd-shaped area or any area obstructed with trees, utility lines or buildings. Adjustable travel speed and water rate application settings are easily set. The units feature an automatic throw-out clutch and long-life irrigation hose. The larger units sports a built-in hose reel powered by a 5 hp gasoline engine. For more details, circle (706) on the reply card.

76 TURF SPECIAL: Ferrari Tractors, Inc., Carlsbad, Calif.

This tractor has an air-cooled 45 hp diesel engine, weighs 2,850 pounds and displaces its weight and traction over all four wheels. Power articulated steering gives extremely tight turning radius and extra wide 12.00 x 16 terra-tires give hillside stability. It has a standard three-point hitch and a 2-speed P.T.O. that handles conventional domestic implement rpm operating ranges. For more details, circle (707) on the reply card.

MODULAR-MATIC DITCH WITCH: Charles Machine Works, Inc., Perry, Okla.

This vehicle is specifically designed to accommodate a wide selection of interchangeable, socket-mount modular tools. This means that one basic vehicle can perform many different job functions simply by adding or switching modules. For each vehicle there are several different digging modules avialable as well as modules for vibratory plowing, the combination digging and plowing module, hydraulic boring, backhoe work, hydraulic breaker operations, clean-up and restoration. For more details, circle (708) on the reply card.

Maryland Agronomist Details Why Herbicides Don't Work

Why don't herbicides work all the time? Why does a herbicide work in one area and not in another?

These and other questions continually baffle applicators. According to Dr. James V. Parochetti, extension weed specialist, University of Maryland, herbicide failure can be explained in a number of reasons: 1. rainfall, either too much or not enough; 2. rate of application; 3. kinds of weeds; 4. application; 5. time of application; 6. pH level.

Activation of a preemergence herbicide takes place when rain falls within 10 to 14 days following application, says Parochetti. If it doesn't rain, the herbicide lays on the surface and weeds germinate and grow through the herbicide barrier.

Incorporated herbicides vitually eliminate the necessity of rainfall, he says. However, a word of caution: some herbicides should not be incorporated because it either destroys herbicidal activity or causes excessive injury.

Excessive rainfall can be detrimental to herbicide performance, too. On light textured soils, leaching occurs, often below the root zone of weeds.

The correct herbicide rate is important to insure adequate weed control, says the extension specialist. Reduction in rate may give acceptable weed control on light soils, but with heavier soils, weeds will not be controlled.

No one herbicide can control all weeds. Therefore, it's important to know that weeds are a problem before selecting a herbicide. Some herbicides are noted for their effectiveness as broadleave weed killers while others are known as grassy weed killers.

Application techniques can make the difference in the performance of a herbicide. Factors which contribute to poor application include: poor equipment, poor mixing, improper incorporation, and improper boom height or inexperience with a spray gun. Equipment that is worn — nozzles, pump, screens — will not deliver the correct rate of spray material on target.

Parochetti says that time of application can make the difference between good weed control and marginal weed control. A preemergence herbicide must be applied prior to weed seed germination.

Lastly, he says that soil pH can have an effect on herbicide activity. Triazine herbicides do not work well in soils with low pH, for example.

CONTINGENCY USE OF DDT GRANTED

(from page 14)

formance that this Agency is force to require USDA to initiate, without delay, a fully funded, comprehensive research program which, is successful, will support registration of effective and environmentally acceptable alternatives to DDT before next year." EPA specified that the research must be completed in time to submit the necessary documents to the Agency no latter than December 1, 1974.

Late last fall, Secretary of Agriculture Earl L. Butz, commented in a press conference that environmentalist had contributed heavily to the situation currently faced by our national forests. He said that "We've got our hands tied behind our backs" about the use of DDT. "We've got to do some trade-offs" if control of tussock moth is to be achieved.

In its caterpillar stage, the tussock moth, a native American insect, eats the needles of the Douglas and other fir trees. thus defoliating or killing them.

Train said that he is granting this request "reluctantly" but that, "A decision must be made at this time in order that planning and conthractual arrangements needed for the 1974 control program may be made." He noted the following as among the factors in his decision:

—emergency conditions do exist for severe defoliation and/or tree mortality from tussock moth larvae this spring.

—available evidence indicates that DDT will give better asurance of effectively controlling moth damage than any available alternatives.

—significant economic and health problems could occur without use of the pesticide. Particularly the local impacts could be catastrophic, for example, the Colville Indian Reservation depends upon forestry for 95% of its tribal income. Also, the probability of rapid spread of forest fires is greater in defoliated areas.

—the proposed use is temporary. EPA expects that alternative means of control will be available for post-1974 outbreaks. Restrictions on spraying will minimize adverse environmental impacts.

The EPA decision follows several months of investigation of the tussock moth problem, including five days of public hearings, four of which were held in the Pacific Northwest. □

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Agr. Chemical Association Sells Education Kit

The National Agricultural Chemical Association (NACA) believes that pesticide safety starts at home.

The NACA has introduced a series of 25 color slides and a prerecorded tape cassette home pesticide safety program.

Green Industry firms can use this kit to help community groups, youth organizations and individuals in local safety programs to develop awareness of individuals' responsibility in home pesticide safety. The price of the kit is $11.95.

For more information contact: Safety Division, National Agricultural Chemical Association, 1155 15th St., N.W., Washington, D.C. 20005.

Safety And Health Changes Proposed By OSHA

OSHA has proposed new rules that would set procedures for the submission and consideration of certain required changes in state job safety and health programs.

Under the Occupational Safety and Health Act of 1970 and OSHA rules, state plans must contain assurances that as changes are made in Federal standards or enforcement procedures, corresponding changes will be made in the state programs so they will continue to meet the test of being "at least as effective as" OSHA's program.

Under the proposed rules, states would submit change supplements to OSHA Assistant Regional Directors for review and approval:

— generally within 30 days, when OSHA has issued or modified a job safety or health standard covering an issue in the state's program;

— when enforcement policies or procedures are revised or when legislative or regulatory changes have been made in the OSHA program, including recordkeeping and reporting requirements.

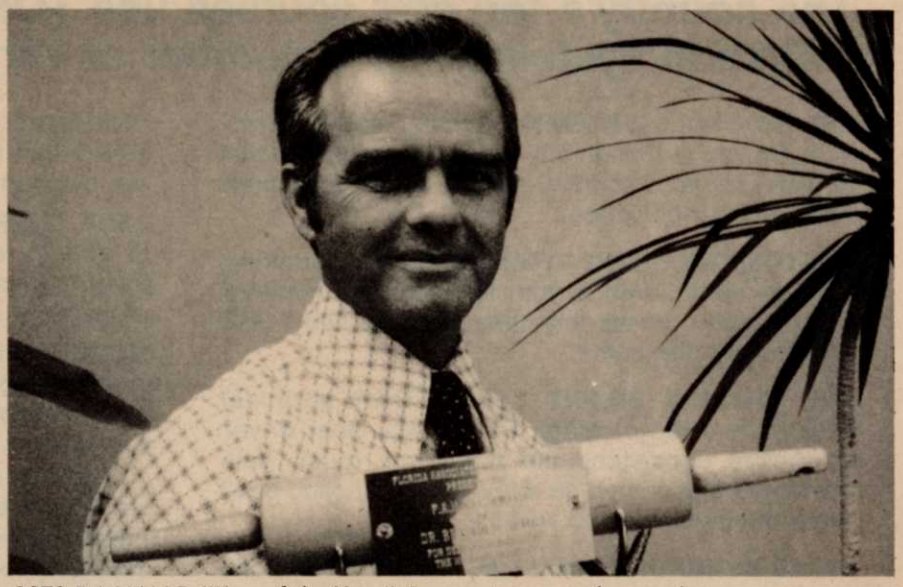
The rules also would require states to adopt emergency temporary standards within 30 days of OSHA issuance unless the state program does not cover that issue or unless the state shows there is no occupational exposure to the hazard within the state warranting an emergency standard.

Since state programs may include standards covering hazards for which there are no comparable Federal standards, revocation of an OSHA standard would not require revocation of a comparable state standard unless the state chose to do so.

1973 F.A.N.N.I.E. Award Presented To Bryson James

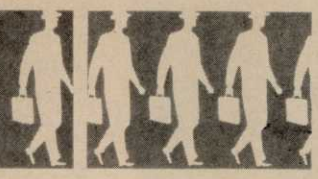
The 1973 F.A.N.N.I.E. "Man of the Year" Award for dedicated service to the nursery industry was presented by the Florida Associated Nurserymen to Dr. Bryson L. James.

James has served the nursery industry for many years and presently is professor and director of the University of Florida Agricultural Researh Center in Ft. Lauderdale. He is leaving this position, however, in April to establish a private consulting service for nurserymen and plans to relocate in McMinnville, Tennessee.



1973 F.A.N.N.I.E. "Man of the Year", Bryson James, with award.

industry people on the move



ALAN G. KIRK appointed assistant admistrator for enforcement and general counsel of the US Environmental Protection Agency. He is charged with the planning and operations of the overall enforcement program and is also principal advisor to the administrator and the agency.

VICTOR A. SCHUR joins Abbott Laboratories as a microbiologist. He will be responsible for laboratory aspects of disease monitoring and diagnosis at the division's Avian Diagnostic Lab. Other appointments include **MARVIN H. ALPHIN** as district manager of agricultural chemicals and **ROLAND M. FORD** as director of international marketing and sales.

D.E. ANDERSON appointed general sales manager for the municipal and industrial service equipment division of FMC Corp. In other company moves **JAMES B. TYLER** promoted assistant director of manufacturing; **WALTER KAZMIERCZAK** appointed field service engineer.

EBEN D. "BUCKY" GODBOLD, HOWARD G. STAHR and **ALLEN A. HAYNER** join Thompson-Hayward Chemical Co. as agricultural sales representatives.

DR. ROGER N. COUTURE named to head herbicide and plant growth regulant research and development at CPI Biological Research Center, Durham, New Hampshire.

C.R. POWELL named president of Diamond Shamrock Chemical Co. He succeeds **WILLIAM H. BRICKER** who was appointed chief operating officer.

RICHARD V. CARR appointed development manager in agricultural business group of Velsicol Chemical Corp. **DANIEL W. HOLLINGSWORTH** named railroad vegetation control specialist for the corporation.

ROGER E. YOUNT II named assistant editor of **Weeds, Trees and Turf.** He was formerly a publicist with the Ohio Department of Natural Resources.

THOMAS F. MCGRAIL appointed national sales manager of the specialty chemicals division of ICI America, Inc., in Wilmington, Del.

JOHN CULBERTSON joins Nunes Turfgrass as sales representative in Southern Calif.

DAVID WOOLF promoted to manager of marketing services at Davis Manufacturing Div., of J. I. Case. He will be responsible for all company advertising, sales promotion and product education.

ROBERT MUIR GRAVES elected president of the American Society of Golf Course Architects. He succeeds **ELLIS MAPLES.**

JESSE J. CROOK named weed control supervisor for Maryland. He replaces **IAN WEDDERSPOON** who left MDA to take a position in private industry.

JOHN F. SCHROEDER has been appointed marketing manager and **MARIO DIBENEDICTIS** named sales manager of construction products division of W.R. Grace & Co.

ELLEN POWLEY promoted to marketing co-ordinator of Melnor Industries. Her responsibilities will include development of marketing programs, co-ordinating projects, working with sales agencies and assisting in all phase of sales and marketing operations.

NORMAN W. HARRIS III promoted to director of management information systems and long-range business planning for Toro Co.

TREE SYSTEMS Med-i-caps® SYSTEMIC TRUNK INJECTION

for fast-effective treatment of iron chlorosis

★ **TESTED BY LEADING UNIVERSITIES**

Two years of evaluating MEDICAPS by leading university researchers have shown the effectiveness of IRON MEDICAPS in correcting chlorosis, and the lasting control that they provide.

★ **PROVEN BY LEADNG ARBORISTS**

Leading arborists across the country have proven that Iron MEDICAPS are not only more effective than previous chlorosis remedies—BUT EQUALLY IMPORTANT, labor and application costs are sharply reduced. For example, a 5" DBH tree can be treated in less than ten minutes with only three STANDARD MEDICAPS (material cost is less than $3.00 at **retail** value). NEW SUPER MEDICAPS provide even greater economy in treating trees above 12" DBH.

Easy To Use Trunk Injection

INJECT MEDICAPS NOW!

Even if you're in an area where trees are dormant, you can utilize "off season labor" to inject MEDICAPS now. The encapsulated MEDI-CAP "implants" will be ready to go to work when the tree sap moves upward.

Creative Sales, Inc.

200 So. Main Fremont, Nebr. 68025

For More Details Circle (159) on Reply Card

HANNAY REELS KEEP HOSE ON THE JOB

You can handle more hose, handle it faster, easier and with greater safety when you install Hannay reels on your spray equipment. Reel handling will keep your hose in service longer, too.

Choose your reels from the widest selection of sizes and rewind options for standard or high pressure service. They're all described in Catalog H-6612-ID. Send for your copy.

HANNAY REELS

CLIFFORD B. HANNAY & SON, INC., WESTERLO, NEW YORK 12193

For More Details Circle (101) on Reply Card

The new officers and directors for the National Arborist Association, Inc. are: (from left) H.A. Morrison, arborist, Wilmette, Ill., Walter E. Money, Guardian Tree Experts, Inc., Rockville, Md., W. Roland Shannon, president, Shannon Tree Co., Milford, Pa., Kenneth Kirk, Shield Shade Tree Specialists, Clayton, Mo., John A. Shullenbarger, Gustin Gardens Trees Service, Inc., Caithersburg, Md., Larry Holkenborg, Holkenborg Nursery, Inc., Sandusky, O., Robert Felix, new executive sec., Wantagh, N.Y., Gerald Farrens, Farrens Tree Co., Eureka, Calif., Boyd Haney, B. Haney and Sons, Inc., Franklin Park, Ill. and Paul S. Walgren, Walgren Tree Experts, Inc., West Hartford, Conn.

Energy Conservation Tips Available From Toro Co.

While the energy shortage may be causing higher prices and upsetting turfgrass maintenance programs, it also represents an opportunity for improving management procedures and operational techniques.

A new energy conservation "tip sheet" by Toro Co. offers suggestions for evaluating and adjusting managerial and operational procedures under five headings: budget, facilities, equipment, turfgrass and people.

It points out that fuel costs represent only two to three percent of operating budgets for turfgrass maintenance but that labor costs average between 65 and 70 percent. Consequently, it suggests, doubling or even tripling of fuel costs can be offset by more efficient management of the labor factor.

Capital expenditures for higher capacity, more efficient mowing and irrigation equipment are suggested as one step for reducing both labor and fuel costs.

Also suggested is a retraining program in mowing techniques and equipment operation and adjustment.

Watson views the energy shortage as a positive force for improving efficiency in all aspects of turfgrass maintenance. "It introduces a new element of challenge that necessitates both the learning of new skills and procedures and a more disciplined utilization of skill levels and proven techniques," he said.

Lessons learned from meeting the challenges caused by the energy problem, he said, will make a long-lasting beneficial contribution to the quality of life in America.

Copies of Energy Conservation Tips are available by writing: Dept. EC, The Toro Company, 8111 Lyndale Avenue South, Minneapolis, Minn. 55420.

Recent Herbicide Study Detect Minute Runoff

According to researchers R. L. Rogers, G. H. Willis, T. G. Hargroder and J. L. Kilmer of the Louisiana Agricultural Experiment Station, Baton Rouge, only minute quantities of linuron (Lorox) and diuron (Karmex) were found in a recent study of runoff waters.

The study was conducted on a series of test plots—24 feet by 200 feet and graded to a slope of 0.15 percent—all at one location in the lower Mississippi River alluvial flood plain. The soil type in the test plots varied from a commerce silt loam to a mhoon silty clay loam. Linuron 2.0 lb ai/A, and diuron 0.75 ai/A, were applied broadcast as preemergence surface treatments, and the linuron and diuron plots were planted to soybeans and cotton, respectively.

Results of the study, the authors reported, indicate that there is usually little surface drainage water from fields in this area in late spring and early summer.

Generally, the researchers noted, there was a progressive decrease with time in the amount of herbicides detected in runoff water. Exceptions to this occurred when heavy rainfalls followed light rainfalls. And approximately three months after application, the researchers concluded, the quantity of herbicides in surface drainage water had decreased below the point of detectability.

For More Details Circle (147) on Reply Card

For More Details Circle (148) on Reply Card

Mass Nursery Marketer Has Place In Industry

"The mass marketer holds a legitimate and important place in the nursery industry, and, in the long run, will exert a healthy influence on that industry," said Robert F. Lederer, executive vice president of the American Association of Nurserymen.

"I have discovered that a great number of people look on mass marketing, multi-outlet retailers as some sort of mysterious threat. Some retailers seem to consider them a dangerous kind of competition; some wholesale growers consider them a complicated, demanding disturbance in their traditional distribution pattern. But as one grower said to me, 'It surely doesn't make sense to put your head in the sand and hope they'll go away.'

"The garden center operator can learn some good things the mass marketers are doing which he can add to his own kind of operation. And he can learn what the mass marketers can never offer their customers which will set him apart as a dominant influence in his own sales situation," Lederer said.

A survey, conducted by the association, of multi-outlet retailers and wholesale growers, showed that mass marketers prefer to deal in a limited variety of plant materials . . . most priced at $10 and less. Garden center operators should not ignore that part of the market, cautions Lederer, but it is certainly not where the big action is. The major purchases, the landscaping advice and service, the planting instructions and materials to go with it all are the business of the traditional garden center. In that respect, there is just no competition between them and the multi-outlets.

This same survey produced some interesting facts for those wholesale growers who want to expand their sales into the mass marketing field. "If the grower does want to build that part of his business," points out Lederer "he has to listen to what the mass marketer wants. They want better record keeping of sales and demands, with information made available to them as they make their purchases. They want to have all materials they purchase labeled at the source. They want the industry to provide them with sales training and maintenance training materials. They want, probably more than anything else, an improvement in delivery arrangements and procedures."

"What can the mass marketer learn from all of this?" asks Lederer. "That he is a part of the nursery industry and shares its problems, and that it is about time he began to feel a part of it. He has much to gain by pitching in with others in the industry to help solve some of our problems. He has much to offer. He should serve on committees and join associations. The nursery part of the business can be the most profitable part if he will treat it properly, staff it adequately, and watch it carefully. After all, he has joined the industry that offers the public 'Nature's Gift' and 'Green Survival' and, in part, it does 'depend on him.' "

Wholesale growers in the nursery industry have an important, demanding, lucrative market for the sale of their products to the multi-outlet operations — without sacrificing any of the quality and service they provide to nursery garden centers. Nursery garden centers profit from the sales stimulation provided by the advertising and point-of-purchase availability of certain nursery products through mass marketers, and profit from some of the marketing techniques developed by the multi-outlets, without losing their competitive advantage.

"Multi-marketers do not represent a threat at all in the final analysis," says Lederer, "but a beneficial step in the progress of the total industry."

Chemical Weed Control Results In Cleaner Air

Use of chemical weed control is resulting in cleaner air and a better environment, reports Dr. Walter Gould, weed physiologist with New Mexico State University, Las Cruces.

Well, I'm waiting . . .

Gould's research on brush control in New Mexico has shown a dramatic reduction in blowing sand where good brush control has been obtained. The amount of blowing soil collected in sand traps in unsprayed mesquite has been about 20-fold greater than the amount collected in continuous areas where the mesquite has been controlled.

Formerly good grassland has turned to mesquite sand dune sites with extensive areas of nearly barren ground between the dunes, Gould explained. These areas are a source of blowing dust whenever the wind velocity exceeds 20 miles per hour.

Controlling the mesquite with aerial applications of 2,4,5-T at low rates has permitted perennial grasses and annual forbs to grow between the sand dunes. This plant growth reduces the wind velocity at the soil surfaces and reduces the amount of blowing dust.

— classifieds —

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: All classifications 50¢ per word. Box number, $1. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment.

HELP WANTED

SUPERINTENDENT OF MEMORIAL PARK A leading midwest cemetery organization desires the services of a high calibre person with capabilities and standards that will justify earnings of $15,000 to $18,000 per year. The position requires the ability to hire, supervise and train personnel in handling the internment service, maintenance of turf, nursery, buildings and fleet equipment and in land development. Proven ability necessary in labor supervision and relations with the public. Close communication with management will provide the support necessary for success. Send hand-written resume', in detail, of the above mentioned subjects that would indicate your practical experience. Box 114, Weeds, Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

GREAT OPPORTUNITY FOR THE MAN WHO LIKES TO BE HIS OWN BOSS!

National leader in tree service, operating from Maine to Florida, offers excellent opportunity in sales and management. Ability to work with public and personnel is important. Must be experienced in tree work or horticulture. Excellent starting salary, expenses and fringe benefits. Intensive training course and outstanding growth potential. Send resume of experience or educational background to:

WILLIAM ECKHARDT
BARTLETT TREE EXPERTS
2770 Summer Street, Stamford, Conn. 06905

—Advertiser's Index—

Adelphi Kentucky Bluegrass . 67
Amchem, Inc., Chemicals Div. ... 3
Ametek, Inc. ... 60
Asplundh Chipper Co. ... 50
Bartlett Mfg. ... 13
Bishop Co., Agrico Country Club ... 33
Certain-Teed Products Corp . . 58
Charles Machine Works ... 49
Creative Sales, Inc. ... 73
Diamond Shamrock Chemical Co. ... 19
C B. Dolge Co. ... 43
E. I. duPont de Nemours Co., Inc. ... 35
Excel Industries, Inc. ... 5
E-Z Go Car Co. ... 38-39
FMC Corp., Agricultural Chemical Div. ... 21
FMC Corp. Ag Machinery Div. . 57
FMC Side-Winder ... 44
Flymo Products, Keltec, Inc. ... 59
Grass Growers, Inc. ... 56
Clifford B. Hannay & Son, Inc. 73
Hercules, Inc. ... 40, 70, 74
International Spike, Inc. ... 25
Jacklin Seed Co. ... 9
Jacobsen Mfg. ... 7
Lofts Pedigreed Seed Co. ... 4th cover
3M Company, Staff Marketing Services ... 62
Manhattan Ryegrass Assn. ... 6
Mobil Aerial Towers Inc. ... 29
F. E. Myers & Bro. Co. ... 15
National Mower Co. ... 28
Otis Elevator Co. ... 27
Pennfine Perennial Ryegrass/ Pennstar Kentucky Bluegrass ... 47
Reinco, Inc. ... 31
Rhodia, Inc., Chipman Div. ... 17, 55, 63
Royer Foundry & Machine Co. 42
Ryan Turf Equipment ... 34
Safety Test & Equipment Co. . 66
Servis Equipment Co. ... 41
Smithco, Inc. ... 62
The Snow Co. ... 22
Stauffer Chemical Co. ... 51-53
Stihl American, Inc. ... 65
Swift Chemical Co. ... 61
The Toro Company ... 11-12
The Toro Company, Irrigation Div. ... 71
Tuco Products ... 3rd cover
U.S. Borax & Chemical Corp. ... 2nd cover
U.S. Gypsum Co. ... 23
Vermeer Mfg. Co. ... 10
Warren's Turf Nursery ... 72
Yazoo Mfg. Co. ... 77

LANDSCAPE FOREMAN—Aggressive, knowledgeable individual with college experience and at least 3 years practical experience after college. Skilled in sprinkler installation, seeding, sodding, planting, gravel, etc. Equipment operation of trenchers, backhoes, loaders. At least 25 years old, with desire to become key man in progressive company, Spanish speaking preferred. Weekly top salary, company truck, paid insurance, and other benefits. Send resume: Landkraft, Inc., P.O. Box 11442, Albuquerque, New Mexico 87112.

HORTICULTURE INSTRUCTOR. Able to teach Landscape Construction, Design, Turf Establishment, Landscape Maintenance and be familiar with operation and servicing of horticultural equipment. Full time position begins June 18, 1974. Prefer B.S. degree and minimum of 3 years field experience. Job description available upon request. Send resume before April 15, 1974, to Chairman, 20000 68th Avenue West, Lynwood, Washington 98036. Phone 206 775-3511.

DISTRIBUTORS for D. J. Andrews, Inc. stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

WANTED: Assistant Golf Course Superintendent. 18-hole, semi-private. Advancement to superintendent during 1974 season, if qualified. Prefer college grad. with experience as an assistant Send resume to: Gerald L. Hanko, Timber Trails Country Club, 11350 Plainfield Rd., LaGrange, Ill. 60525.

SALESMAN-SUPERVISOR for Tree Department B. S. plus minimum 5 years experience. Hospitalization, vacation, pension, company car, salary plus commission. Heyser Landscaping, Inc., 400 N. Park Ave., Norristown, Pa. 19401.

SEEDS

SOD QUALITY Merion Seed for discriminating growers. Fylking, Delta, Park, Newport, Nugget, Adelphi, Cheri, Glade and Baron bluegrasses as well as fine fescues. Also Manhattan fine leaved rye grass. We will custom mix your specifications. Michigan State Seed Co., Div. of Vaughan-Jacklin Corp., Grand Ledge, Michigan 48837. Phone No. 517 627-2164.

FOR SALE

DOUBLE EDGE sod cutter blades. Will fit any Ryan sod cutter. Works like double edge razor blade. Cuts much more sod per blade. Made to bolt on both ways. $24.00 plus postage. New automatic sod loaders for direct loading to pallets, trucks or trailers. No workers needed on ground. Both products developed and designed by Hadfield. Write or call Glen Hadfield, 4643 Sherwood, Oxford, Michigan 48051. Phone 313 628-2000.

SOD BLADES for Ryan, Brouwer, Beck. 12" to 18" heavy duty—$15.95, 24"—$17.95. Cut-off blades 12", 15", 16", 18"—$6.00, 20", 24", 26"—$8.00. All prices F.O.B. factory. Please write for complete literature. Money back guarantee. R & R Products, 3334 E. Milber, Tuscon, Arizona 85714. Phone 602 889-3593.

WOOD SPLITTER attachment for your backhoe converts your backhoe to a splitter in less than 10 min. Build it yourself with our blueprints. Send $17.50. Lupton Tree Service, 32 Martha St., Tiffin, Ohio 44883.

ARPS stump cutter teeth, top quality and best price in U.S.A., D. J. Andrews, Inc., 17 Silver St., Rochester, New York 14611. Call 716 235-1230.

FOR SALE: Jaccobsen E-10 Tractor with Mowers. Ready to mow. Can be seen at Brookside Country Club, Canton, Ohio. Contact Robert Figurella 216 477-0283.

MISCELLANEOUS

PESTICIDE TEXT BOOK: Helps prepare for state certification. All answers fully explained. More than 500 pesticide applicator firms are already ahead of you! $7.50/copy. Write: Austin M. Frishman, 30 Miller Rd., Farmingdale, New York 11735.

USED EQUIPMENT

FOR SALE: Bean Roto Mist 301 trailer mounted, tandem axle electric brakes—300 gallon tank—very good condition. No longer doing mist spraying, $6,000.00. Contact: Charles F. Irish Co., Inc., 24900 Groesbeck Hwy., Warren, Michigan 48089. Phone 313 527-2921.

FOR SALE: Sprayers: used and new—Hydraulic and mist, all makes. Reconditioned pumps — Bean Royal 20, 35, and 55. Used Rotomist parts. Phone: Normandy 2-3507 or write: Ralph McFarland, 209 Pleasant Place, Ann Arbor, Michigan 48104.

FOR SALE: Sprayers: used and new; hydraulic and mist, all makes; Royal 20, 35, and 55 pumps. Used rotomist parts, big discount! Phone: 313 6655-338 or 313 662-3507. Write: Ralph McFarland, 209 Pleasant Place, Ann Arbor, Michigan 48103.

70 PIECES—30' x 4" aluminum irrigation pipe. Tico-Wade couplers. Risers and sprinklers available. 4 years old. $24.00 per piece. Green Valley Turf Farms, Box 163, Canfield, Ohio.

FOR SALE: John Bean sprayer—14 gallon minute pump 200 gallon tank, mounted on 2 wheel trailer—needs plumbing repair—tank and pump is okay. Miller Tree Experts, RR3, Mason City, Iowa 50401.

1971 VERMEER LOG CHIPPER model 604, diesel engine, 600 hours, like new, $12,000.00. Bob's Tree Service, 5148 North Flora, Kansas City, Mo. 64118. Phone 816 454-2242.

SKID-MOUNT SPRAYER, like new, 300 gallon, 12 horsepower B. S. engine, high pressure hose, electric reel, $1,095.00. Phone 612 929-1070; 854-3508.

BEAN SPRAY RIG, 25 GPM, 300 gallon, hose, gun, on '58 Ford F350,—good condition, ready to work, $800, sprayer alone $550. Phone (N.J.) 201 946-8366.

W. G. "Buck" Siler, who is pro and owner of Longview Golf Club, in the Guilford College section of Greensboro, N.C., says

"So far, this old Yazoo has saved me $28,000 in payroll"

"I bought it ten years ago; it replaced a 42″ belly-slung tractor.

"I was using two hand mowers trimming continuously during the season. After I got the Yazoo, we had one hand mower trimming two to three hours a week. I was able to save one man and put the other to work on spot seeding, repairing eroded spots, maintaining traps and manicuring the fringes of greens. The course looks a lot better because the work doesn't pile up.

"The trimming ability of this mower is remarkable. It can mow a 360-degree turn around the trees, without scoring the bark, as we did with the belly-slung mowers. We use it to trim 90% of the lake banks.

"In 1969 I replaced a flail with a second YR-60. Switching to the two Yazoos is saving me $5,600 a year in payroll. They also free the regular men to do jobs that used to get neglected. Mowing doesn't dominate our time the way it used to."

The YR-60 will cut up to 18 acres a day. A Yazoo will mow under shrubs. Under guard rails. Around poles in one pass. Along walls. In and out of ditches. In high grass or low. You don't follow up with a trim mower and another man.

The reason: it's designed around the Yazoo Transaxle, the only power train specifically designed for mowing operations.

Now in 76-inch, 60-inch, 48-inch, 42-inch and 36-inch cuts. Original cost is about half of comparable machines. Call or write; we'll arrange a demonstration on your home turf.

YAZOO
MANUFACTURING COMPANY
P.O. Box 4207 / 3607 Livingston Road / Jackson, Mississippi 39216
MAKERS OF THE ORIGINAL BIG-WHEEL MOWERS

trimmings

NOTHING FOR SOMETHING . . . that' what two enterprising Soviet bottlers hit upon. They decided to save money (and rook the Russian consumer) they would leave out the fruit flavor in making bottled fruit juice. Then they'd pocket the money earmarked for buying the fruit. Not exactly a cat and rat story, because when the Kremlin discovered the ploy, the bottlers were executed. Moral: the head comes off when the flavor is gone.

AMERICAN BUSINESS PRESS recently engaged the services of a research firm to investigate the effectiveness of advertising undertaken by industrial firms. A few of the conclusions drawn from the survey are: Advertising creates product awareness and as a result can and does generate sales. The cost per sale can be significantly reduced via business paper advertising. Companies which maintain their advertising in recession years do not suffer as severe a let-down as those who curtail their advertising. There is no overall formula that tells management when to increase or when to decrease the ad budget. Nor is there a formula which will absolutely predict the return to be expected on a given advertising investment.

LET'S SAY IT ONCE and make it stick. Research conducted by Penn State University shows that plants usually take up essential nutrients as inorganic forms. Thus, if soil nutrients are applied in organic form, the nutrients must first be converted to inorganic form in the soil before being absorbed by plants. This means that plants produced on organically-fertilized soils are not necessarily of higher nutritional quality than plants grown with the use of inorganic fertilizers.

Caution: Penn State says that this does not suggest that organic material is of no value. Quite the contrary. Organic fertilizers improve soil characteristics such as water-holding capacity, tillability, and rain absorption capacity. Applying waste materials to the soil provides a means of recycling waste to improve environmental quality.

RAINFALL contributes an average of 6.47 pounds of nitrogen per acre each year in an area where annual precipitation is about 30 inches. So says Gerald E. Schuman a USDA soil scientist who has recently reported these findings from a two year study. Thus if your crop happened to be corn, the amount of nitrogen in rainfall would be approximately two-thirds of the soluble nitrogen in runoff from a watershed, assuming the crop was fertilized at the recommended rate of 150 pounds of nitrogen per acre.

TIME LOST to accidents involving tree pruning, trimming, spraying and repair continues to increase in Ohio. In 1973, tree branches caused 13 reportable accidents and power saws accounted for 5. Added to this were other miscellaneous injuries for a total of 25. In 1972, the record was a total of 8. Slips or over exertion shot up by 61 percent to 23, while being struck by moving objects increased by 68 percent to 34. Isn't it time that we started putting into practice the safety slogans hanging on the workshop door?

TAKE NOTE BEFORE ACTING is the advice of a local bowling lane operator and his advertising agency. Seems that 15 months ago an ad man and a bowling alley employee hit upon an idea to help small businessmen. They offered to sell advertising space on the bowling alley score sheets. The business booster busted. Delay after delay was incurred in receiving the score sheets after the advertising was sold. The ad contract had no provisions for delays or non-delivery. If you enter into this type of contractual arrangement for display advertising, have your attorney check over the contract before signing.

WEIGHT AND FUEL ECONOMY work inversely to each other when it comes to your car. As weight increases, fuel economy goes down. Optional equipment is another limiting factor. Fortunately, the wise folks at EPA have attempted to uncomplicate the complicated. They've issued a short bulletin "miles per gallon" that gives guidelines to all new prospective auto purchasers. You can also obtain a copy of the test results for 1974 cars from EPA by writing: Fuel Economy, Office of Public Affairs, U.S. Environmental Protection Agency, Washington, D. C. 20460.

PRUNE NO MORE is the word from the British. A new patented chemical applied on certain street trees such as European limes, poplars and London planes stops unwanted growth for a full 12 months. This is what Burts and Harvey, Ltd., who manufacture Burtolin, claim. They report that 10 years of testing have produced no adverse affects. In fact, they claim that repeated applications over several years greatly improved the appearance of trees.

SHADES OF CHURCHILL, those fellows at Burts and Harvey, Ltd. have another labor saver. This one is called Regulox W. It slows down the rate of growth of turfgrass. According to the manufacturer, the chemical reduces grass cutting to as little as once a year. Improved Regulox W has been undergoing intensive testing for the last three years. Already several leading local authorities in the north of England have used the chemical and have achieved substantial savings — up to 80 percent.

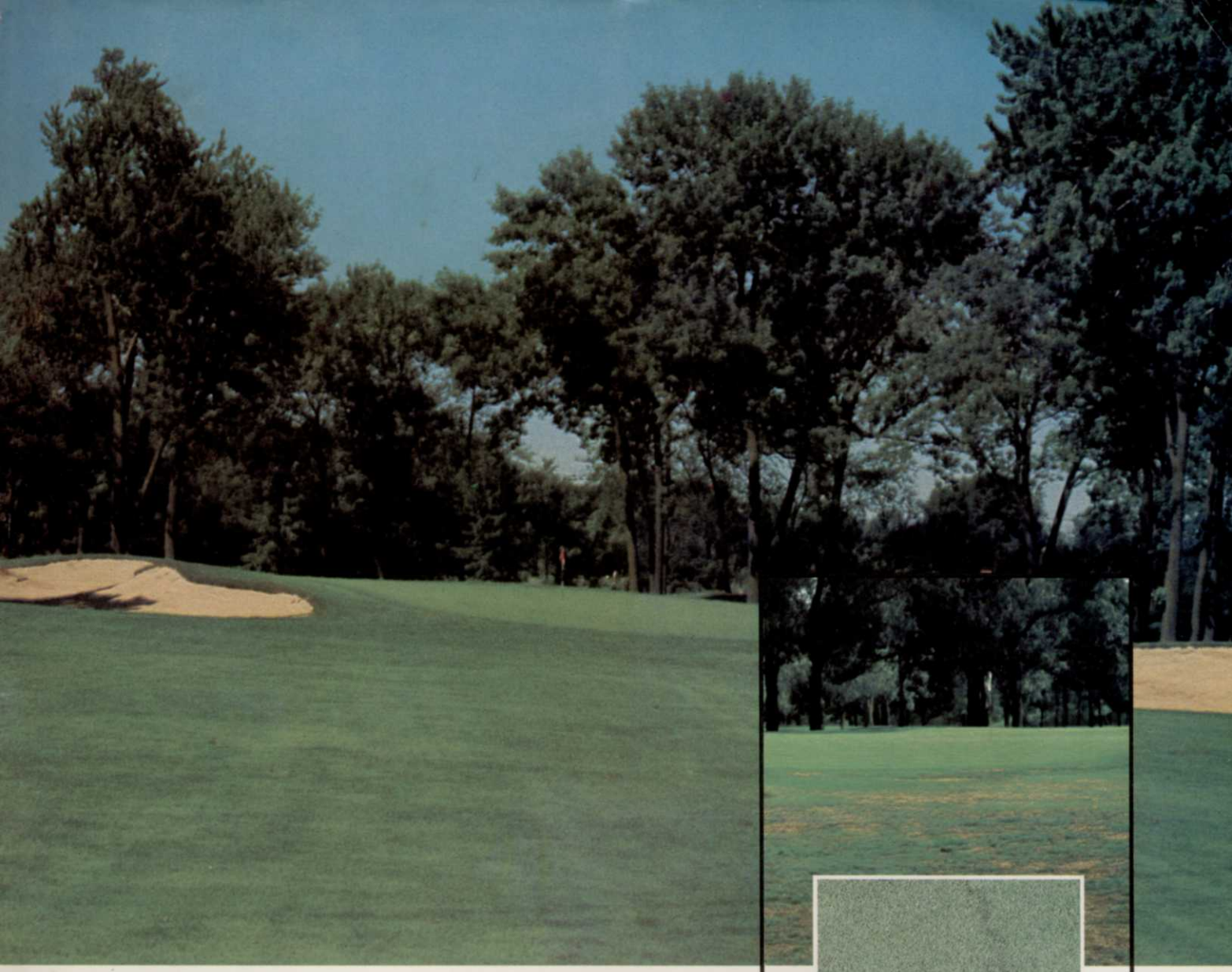
Clever Chart Tells All

Wall charts can be one of the best educational devices available for teaching members of your labor force. They provide a replay of information learned in courses or textbooks, and they make the person reading them an instant expert on the subject of the chart.

A new wall chart is now available from the agricultural division of Ciba-Geigy Corporation. It's called "Insects That Sting." It provides illustrations and descriptions of the insects which most commonly cause serious allergic reactions in humans. Included is a description of each insect, where it is most commonly found and how to identify and treat its bite or sting. It also includes valuable information on identifying and treating allergic reactions to sting, reducing the chances of being stung, safely removing insect nest and a special section on avoiding mosquito bites. Ouch!

Dr. Richard L. Miller, extension entomologist at Ohio State University and medical entomologists Margaret A. Parsons and Dr. Richard L. Berry of the Ohio Department of Health, prepared the text and chart.

Up to ten copies of "Insects That Sting" are available at no cost by writing to: Agricultural Division, Ciba-Geigy Corporation, ATTN: Betsy Wood, P.O. Box 11422, Greensboro, N.C. 27409.



Beautiful turf is no accident. Make it happen with Acti-dione® 4-season disease control

The old saying that beauty is more than skin-deep is nowhere more applicable than on a golf course. Beautiful turf will not retain its beauty unless it remains healthy. In addition to normal wear and tear from golf play and stress from variable weather conditions, fungi are an ever-present health threat to turf. There's little you can do about golf play and weather, but you can control fungal diseases. An effective, economical way to combat fungal growth all year long is to use Acti-dione® Thiram and Acti-dione TGF® in a four-season disease control program. With fungi out of the way, turf has a better chance to grow strong and healthy — to resist weed infestation, to bounce back from injury and to survive adverse weather conditions. See your TUCO distributor today for complete information and assistance in planning a four-season disease control program with Acti-dione turf fungicides.

Brown patch heads summer diseases

Brown patch is a prime summer threat because it thrives in warm weather. Acti-dione Thiram, applied weekly, controls not only brown patch, but also dollar spot, melting-out, fading-out, leaf spot, rust and powdery mildew.

STOP

Use Proxol* 80SP to help prevent insect damage

TUCO Division of The Upjohn Company, Kalamazoo, Michigan 49001

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"In our area, we need a bluegrass that comes up fast and stays green longer... 3 years ago we picked Baron Kentucky Bluegrass. And we haven't changed since."

"Our season isn't as long as most areas of North America and the grass we seed must get up quickly and mature as fast as possible. We usually got about half a crop until Baron came along. Now we get two-thirds or three-quarters of a crop in the same growing period."

As a continuing series in reporting the thoughts of some of the best sod growers, here are some comments Loren Hentges of Blaine, Minnesota had about

baron KENTUCKY BLUEGRASS

U.S. Dwarf Variety Plant Patent No. 3186

"I always felt that one of the big disadvantages to a bluegrass sod was dry weather. Baron stands dry weather better than any bluegrass I have ever grown."

"Almost all of our customers are pleased with our Baron sod. In fact, I've never really had any complaints in the 3 years we've been growing Baron."

"Baron stays green longer in the Fall and that means more satisfied customers for me. When it gets cold up here, I need a grass that stays green right up to the time we deliver to our customers. When the grass goes dormant, I'm out of business."

"With Baron, I can take a crop off, re-seed for another stand and still get good establishment and excellent color in the Spring."

"The shipping quality of our sod is important to us. Baron makes a good roll because it is dense and keeps the roll tight."

There's not much more we can add to Loren's comments except that Lofts Pedigreed Seed Company or any authorized distributor is ready to serve your needs wherever you grow sod.

LOFTS

Exclusive North American Grower and Distributor:

Lofts Pedigreed Seed, Inc.

Bound Brook, N.J. 08805 / (201) 356-8700

Loren Hentges, grower of over 500 acres of sod, is one of the major sod growers in Minnesota.

GOLF COURSE BUILDERS OF AMERICA MEMBER